AMERICAN JOURNAL OF

PUBLIC HEALTH

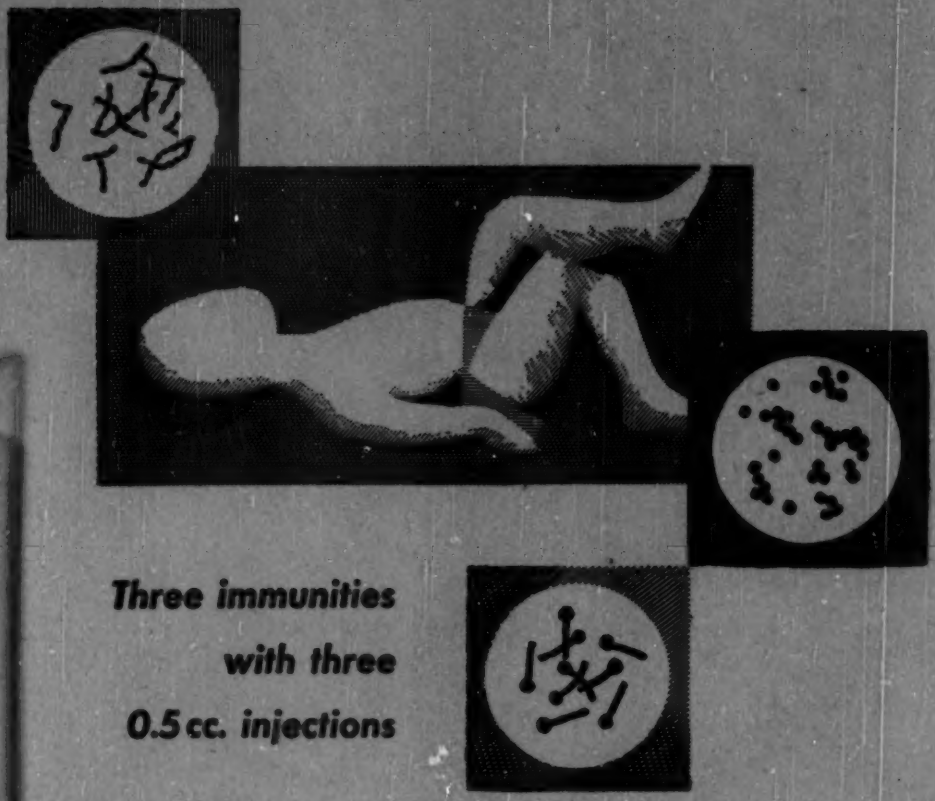
and THE NATION'S HEALTH

Volume 39 FEBRUARY, 1949 Number 2

Published Monthly at 374 Broadway, Albany 7, N. Y., by the

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway (at 58th Street), New York 19, N. Y.



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*Cecil, R. A.: A Textbook of Medicine. Philadelphia, W. B. Saunders Co., 1947, p. 876.

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American Journal of Public Health
and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 39 — February, 1949 — Number 2

CONTENTS

PAGE

Lemuel Shattuck—Still a Prophet—A Symposium
America's Great Public Health Pioneer 135
W. G. Smillie, M.D.

Sanitation of Yesterday—But What of Tomorrow? 145
Abel Wolman, Dr. Eng.

The Vitality of Vital Statistics 151
Hugo Muench, M.D., Dr.P.H.

The Message of Lemuel Shattuck for 1948 156
C.-E. A. Winslow, Dr.P.H.

The Montefiore Hospital Home Care Program 163
Martin Cherkasky, M.D.

Home Nursing Service in the Health Insurance Plan of Greater New York 167
Marian G. Randall, R.N.

Studies on Survival of Influenza Virus Between Epidemics and Antigenic Variants of the Virus 171
R. M. Taylor, M.D., D.P.H.

Comparison of Pertussis Cultures by Mouse Protection and Virulence Tests 179
P. L. Kendrick, Sc.D., Elaine L. Updyke, Sc.D., and Grace Eldering, Sc.D.

Continued on page vi

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

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Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

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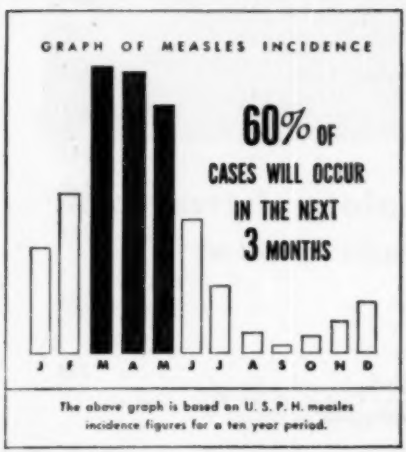
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Contents—Continued

PAGE

The Diphtheria Epidemic in Amsterdam 185
A. Charlotte Ruys, M.D., and A. L. Noordam, M.D.

Observations on the Epidemiology of Shigellosis among Institutional Inmates in Puerto Rico 195
Guillermo Arbona, M.D., M.P.H., and Luis Gonzalez, Ph.D.

Arctic Sanitation 202
W. A. Hardenbergh

Nutritional Reconditioning of Children 205
Elsie Z. Moyer and Icie G. Macy, Ph.D.

Welfare Measures and Their Effect upon the Family 214
Bailey B. Burritt

A Pattern of Local Services in the Saskatchewan Health Program 216
Frederick D. Mott, M.D.

EDITORIALS:

Building our Defenses against Influenza 221

Commercial Exploitation of Glycol Vaporizers 222

Home Care at the Montefiore Hospital 224

Hugh S. Cumming 225

Letters to the Editor:

Samuel D. Allison, M.D. 226

J. A. Glover, M.D., F.R.C.P. 226

Clearing House on Public Health Salary Information 227

Revised Criteria for Accreditation of Public Health Courses 230

Credit Lines 233

Books and Reports 242

Books Received 249

Public Health in Foreign Periodicals 251
George Rosen, M.D., Ph.D.

A Selected Public Health Bibliography 255
Raymond S. Patterson, Ph.D.

Association News 258
Revision of the Report on Communicable Disease Control Under Way. Special Notice to Milk Control Laboratories. Applicants for Membership.

Employment Service 265

News from the Field 268

Conferences and Dates 292

Reprint prices furnished upon request

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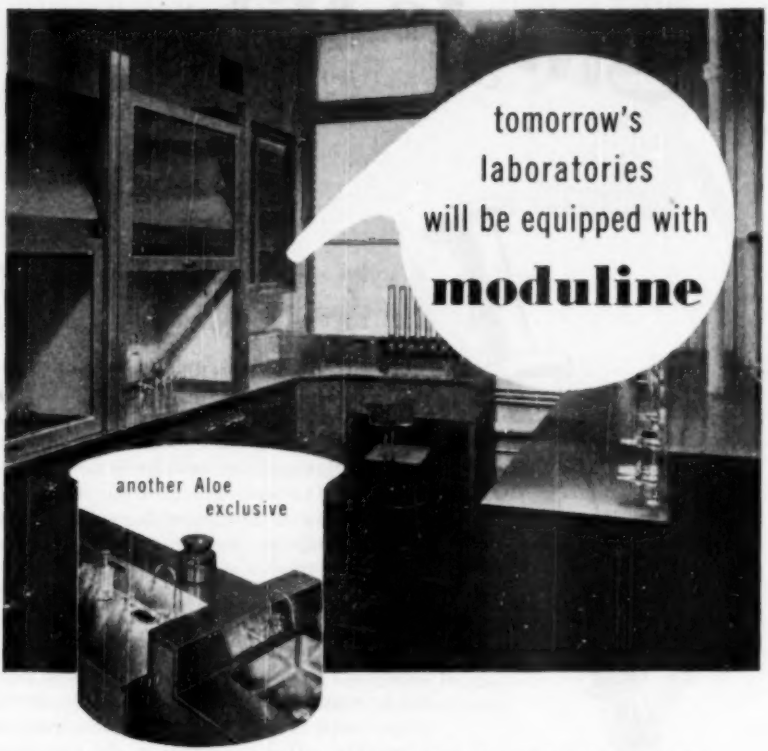
INDEX TO ADVERTISERS

	Page
American Public Health Association:	
Book Service ..... XXX, XXXIII, XXXV, XXXVI	
Membership Application	XXXIII
Sustaining Members	XXIX
A. S. Aloe Company.....	IX
American Can Company.....	XXII
American Meat Institute.....	XXXVII
American Seal-Kap Corporation.....	XXXII
Bristol Laboratories	XVII
Burroughs Wellcome & Company.....	XV
Cereal Institute, Inc.....	XXIII
Certified Blood Donor Service.....	VIII
Clay-Adams Company, Inc.....	XVIII
Corning Glass Works.....	XVI
Commercial Solvents Corporation.....	X
Crown Cork & Seal Company.....	XIX
Cutter Laboratories	V
Difco Laboratories	Back Cover
Directory of Health Service.....	XXXII
Bendiner & Schlesinger Laboratories	
Black & Veatch	
Merit System, A.P.H.A.	
Dixie-Vortex Company	VII
Eimer and Amend.....	XIV
Fisher Scientific Co.....	XIV
Garrard Press	XXXIV
Lederele Laboratories	XI
MacGregor Instrument Company.....	XXXI
Merck & Co., Inc.....	XXVII
National Confectioners' Association.....	XXVI
National Dairy Council.....	XII, XIII
Parke Davis & Company.....	III
Rhode Island Civil Service.....	XXXII
Reynolds, R. J., Tobacco Company.....	XX, XXI
Squibb, E. R., & Sons.....	II
Wallace & Tierman Company, Inc.....	XXVIII
Winthrop Stearns, Inc.....	XXV
Wyeth, Inc.	XXIV



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IN PEANUT OIL
WITH 2% ALUMINUM MONOSTEARATE

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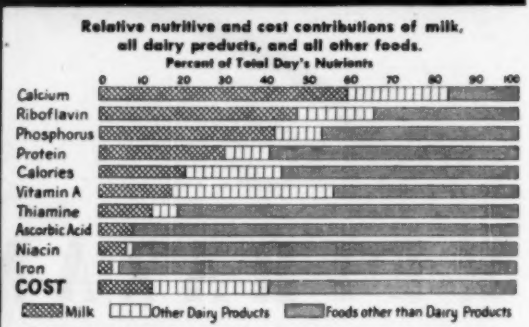

This chart shows the nutritional contribution and comparative economy of dairy products and all other foods in a good average day's meals planned to follow the Basic Seven food pattern.

Milk and Its Products are an Economical Basis for Daily Meals*

In planning meals, each food must be evaluated for its relative cost and its potential benefit to the body.

Milk and its products raise the food value of meals in each of the major aspects of nutrition . . . energy, proteins, minerals and vitamins. The chart above shows that milk and its products—cheese, ice cream and butter—in recommended amounts, can supply well over half of the day's total needs for calcium, phosphorus, riboflavin and vitamin A, and important amounts of other essentials, at considerably less than half of the day's total food cost. The chart demonstrates the fact that milk and its products are an economical basis for nutritious daily meals.

Milk's Food Value is High—Milk is an outstanding example of a food which contributes many times over its original cost in terms of bodily benefits. Without milk it is almost impossible to obtain the recommended daily amounts of calcium from other foods. Needed amounts of riboflavin and protein also are difficult to obtain without milk. In addition to its many *known* benefits, milk also is believed to contain additional nutritional factors whose identity and exact function are not yet fully established. Scientists are constantly carrying on research to bring forth the final significance of milk's nutritional role.

Milk Provides Generously for Its Own "Family"—Milk passes along to its products varying combinations of its nutritive elements. Cheese inherits much of the high quality protein, as well as substantial amounts of calcium and phosphorus. Ice cream, too, retains much of the protein content of milk, and helps increase the calcium and vitamin A intake. Ice cream is also a good source of riboflavin and recently has been shown to contain a highly utilizable form of this vitamin. Butter is a nutritious food in its own right. It is a splendid source of vitamin A and provides needed food energy in a delicious, digestible form.

**Milk is an Economical Food.* Dairy Council Digests. 20:2 (Nov.) 1948.

The presence of this seal indicates that all nutrition statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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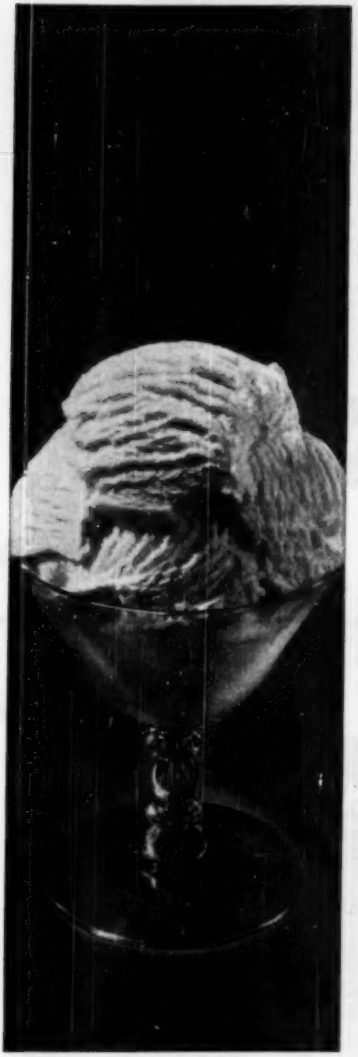
111 North Canal Street • Chicago 6, Illinois

Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and to education in the use of dairy products.



New Light on the Food Value of Ice Cream

Recent nutrition research has produced new evidence of the excellent food value of ice cream.

The substantial contribution ice cream can make to our dietary needs was assumed long ago from calculations of the food value of ice cream's ingredients. Now, however, actual analyses of commercial ice cream itself have shed new light on its food value. These analyses show that, in general, we had underestimated the nutritive content of ice cream. *This was particularly true of riboflavin and vitamin A.*

By actual analysis of average vanilla ice cream, values for calories, protein, fat, three important minerals, and five essential vitamins were obtained by Dahlberg and Loosli.* The riboflavin content is now realized to be much higher than the value formerly arrived at by calculation. Vitamin A is higher, too. This is because most ice cream is made with milk fat produced in summer months when the vitamin A content is above average levels.

The presence of a nutritive element in a particular food is merely the first step in determining its ultimate beneficial effect. The nutrient must be in a form which is readily assimilated by the body. In this respect, the riboflavin in ice cream is of a superior nature.

A study conducted by Everson and co-workers** on eight women subjects reveals that the riboflavin in ice cream is utilized almost 100% by the body—*nearly as well utilized as the pure crystalline form of the vitamin.* Utilization from servings of two other test foods, which were similar to the ice cream in riboflavin content was less than 50%.

These studies offer tangible evidence of ice cream's importance as an *everyday* food. Ice cream can play an important role in promoting general well being for all and can help meet the special diet demands of pregnant women, convalescents, and aged persons.

*Dahlberg, A. C. and Loosli, J. K. *Nutritive value of commercial ice cream.* J. Am. Diet. Assn. *24*:20 (Jan.) 1948.

**Everson, G., Wheeler, E., Walker, H., and Caulfield, W. J. *Availability of riboflavin of ice cream, peas, and almonds judged by urinary excretion of the vitamin by women subjects.* J. Nutr. *35*:209 (Feb.) 1948.

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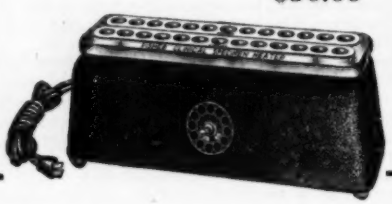

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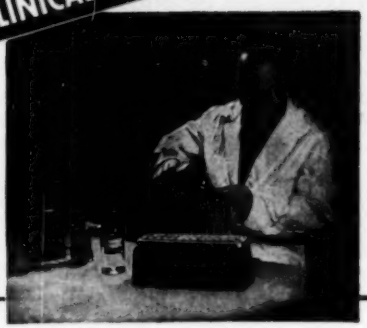

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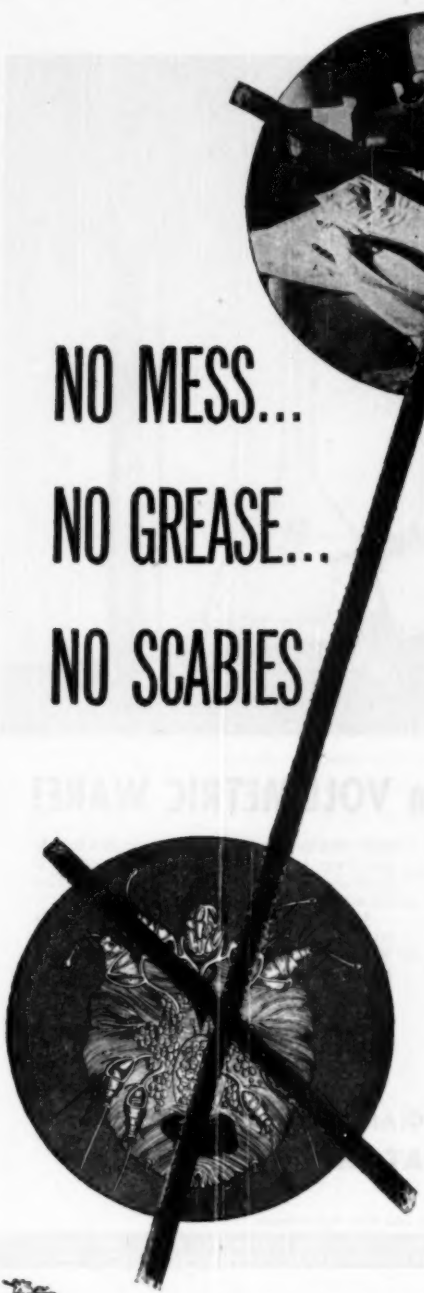

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NO SCABIES

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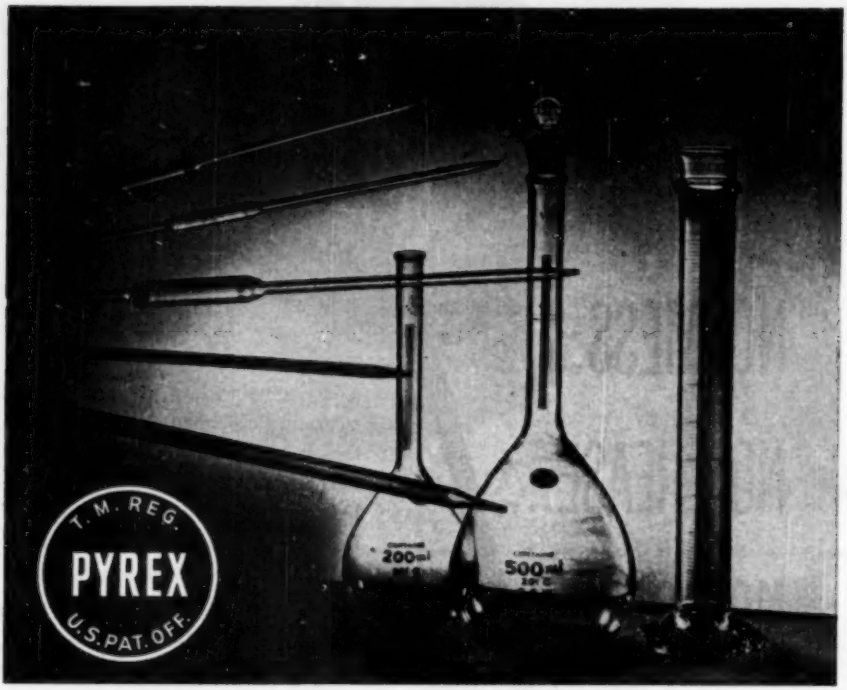

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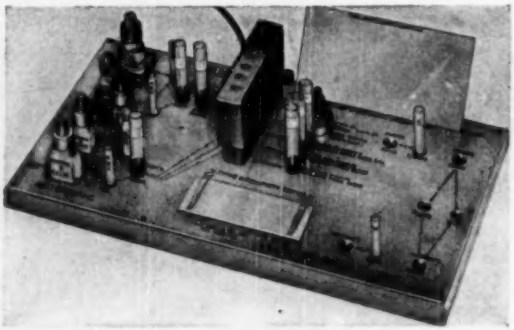

- Minimizes the possibility of technical or clerical errors.
- Embodies all the latest approved technics of blood grouping, Rh typing, Rh sensitivity testing and cross matching for transfusion.
- Simplifies and combines these technics in an orderly sequence.
- Facilitates the grouping and cross matching of blood for emergency or routine use.
- Can be used for routine Rh typing and sensitivity testing in individual maternity cases.

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Tubes and reagent bottles have in-the-glass labels in different colors, matching the labelling and coloring of their places in the board. Each reagent bottle and cross matching tube is of a different shape and size, so that it fits only in its proper place. Anti-serum bottle adapters hold any commercial anti-serum bottle; they are permanently marked, fit only in their own place in the Board and are colored to conform to the coloring recommended for the sera by the National Institute of Health. Reagent bottles and adapters are designed to permit one-hand removal and replacement of the dropping pipettes.

The Rh typing box[2] is lighted, tiltable and designed to maintain a temperature of 37° to 42° C in the slide concavity where the blood sample is placed.

The Board has a slot to hold the Donor Card and Transfusion Request Form directly in front of the technician while tests are being made. A blotting paper holder is also provided, conveniently near the technician.

1. "A Note on Blood Grouping and Cross Matching with Special Reference to a Convenient Cross Matching Board." Brown, I. W., Jr., M.D. In press.
2. "The Demonstration of Anti-Rh Agglutinins—An Accurate and Rapid Slide Test," Louis K. Diamond, M.D., Boston, Mass., and Neva M. Abeleon, M.D., Philadelphia, Pa., Jl. of Laboratory and Clinical Medicine, Vol. 30, No. 3, March 1945.

A-2800 Brown Blood Board, complete with Rh typing box, anti-serum bottle adapters, reagent bottles, test tubes, dropping pipettes and four-concavity slides. **Each $90.00**

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Covers the pouring lip of the bottle

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Test Camel Mildness for yourself in your own "T-Zone"—T for taste, T for throat. If, at any time, you are not convinced that Camels are the mildest cigarette you ever smoked, return the package with the unused Camels and we will refund its full purchase price, plus postage. (Signed) R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina.

In a recent coast to coast test of hundreds of people who smoked only Camels for 30 days, throat specialists, after weekly examinations, reported:

"Not one single case of throat irritation due to smoking CAMELS!"

Hundreds of men and women were included in this coast to coast test. These men and women smoked Camels—and only Camels—for 30 consecutive days. They smoked on the average of one to two packages a day. Each week noted throat specialists examined the throats of these Camel smokers—a total of 2470 careful examinations. In every report, the findings of these throat specialists were the same—"not one single case of throat irritation due to smoking Camels."

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In Delft a well-fed hound draws a two-wheeled cart containing two large red copper cans. Measuring cans hang from the sides. This picturesque, two-way system is easily contaminated by germs causing milk-borne infections.

In America you'll find safe, sanitary Canco flat-top Paper Milk Containers . . . the one-way system whose nation-wide acceptance has been aided by Public Health officials.

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1. **Single-trip** feature breaks chain of possible milk-borne infections!
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BREAKFAST skimping has no place in convalescence, since a poor morning meal may impose an impossible task on the other two meals in providing the daily nutrient needs.

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This pattern breakfast is rarely contraindicated. It is exceptionally well balanced as evidenced by the table of nutrient composition, and may be varied almost endlessly to provide renewed taste appeal. The cereal serving, consisting of breakfast cereal,* milk, and sugar, is an important component of this meal.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.

A RESEARCH AND EDUCATIONAL ENDEAVOR DEVOTED TO THE BETTERMENT OF NATIONAL NUTRITION

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BASIC BREAKFAST	TOTALS supplied by Basic Breakfast		AMOUNTS supplied by cereal serving
Orange juice, 4 fl. oz.;	CALORIES	611	202
Ready-to-eat or Hot Cereal, 1 oz.;	PROTEIN	20.7 Gm.	7.1 Gm.
Whole Milk, 4 fl. oz.;	CALCIUM	0.465 Gm.	0.156 Gm.
Sugar, 1 teaspoon;	PHOSPHORUS	488 mg.	206 mg.
Toast (enriched, white), 2 slices;	IRON	3 mg.	1.6 mg.
Butter, 5 Gm. (about 1 teaspoon);	VITAMIN A	1074 I. U.	193 I. U.
Whole Milk, 8 fl. oz.	THIAMINE	0.52 mg.	0.17 mg.
	RIBOFLAVIN	0.87 mg.	0.34 mg.
	NIACIN	2.3 mg.	1.4 mg.
	ASCORBIC ACID	64.8 mg.	

**Composite average of all breakfast cereals on dry weight basis.*

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As a result of this evidence, Propion Gel now stands accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in *New and Nonofficial Remedies*.

Literature on request. Propion Gel comes in 95-gram tubes (7-day supply)—with or without applicator. Wyeth, Philadelphia, Pa.

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Calcium Propionate 9.5%—Sodium Propionate 9.5%—Propionic Acid 1%

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The ORIGINAL Quaternary Ammonium Germicide

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In Roccal, the original quaternary ammonium germicide, you are offered a product that is always uniform in quality because it is made under the most rigid controls. Every batch must pass the comprehensive laboratory tests of one of the world's leading pharmaceutical manufacturers. You can depend on Roccal to do a better sanitizing job *every* time!

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Many candies are made of valuable foods in addition to sugar—butter, milk, cream, eggs, nuts and peanuts—and to the extent these foods are present, candies contribute biologically adequate protein, vitamins, and minerals.

THE NUTRITIONAL PLATFORM OF CANDY

1. Candies in general supply high caloric value in small bulk.
2. Sugar supplied by candy requires little digestive effort to yield available energy.
3. Those candies, in the manufacture of which milk, butter, eggs, fruits, nuts, or peanuts are used, to this extent also—
   (a) provide biologically adequate proteins and fats rich in the unsaturated fatty acids;
   (b) present appreciable amounts of the important minerals calcium, phosphorus, and iron;
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4. Candies are of high satiety value; eaten after meals, they contribute to the sense of satisfaction and well-being a meal should bring; eaten in moderation between meals, they stave off hunger.
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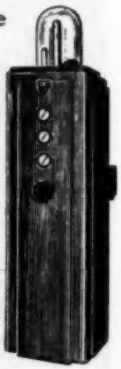
Wallace & Tiernan, pioneers in chlorination for over 35 years, lead the way in solving water treatment problems through the Break-Point Process in hundreds of installations across the country. They are ready to show you how Break-Point can help in your plant, too.

Call your nearest W&T Representative. He'll be glad to tell you, without obligation, how the Break-Point Process can be applied effectively in the solution of many of the operator's most trying problems.



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American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 February, 1949 Number 2

Lemuel Shattuck—Still a Prophet

Lemuel Shattuck — America's Great Public Health Pioneer *

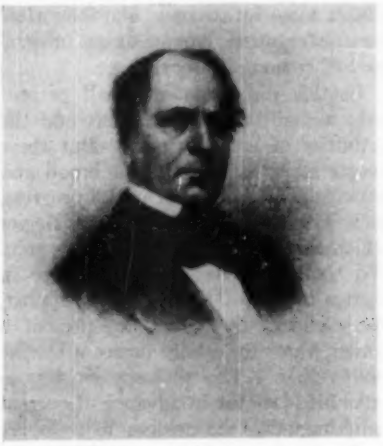
W. G. SMILLIE, M.D., F.A.P.H.A.

Department of Public Health and Preventive Medicine, Cornell University Medical College, New York, N. Y.

WE are met to commemorate a centennial of public health progress in America, and to pay tribute to America's foremost public health pioneer. For it is now quite clear that the cornerstone of the splendid edifice of public health in this nation was laid in the City of Boston one hundred years ago, with the publication of the famous *Report of the Sanitary Commission.*

I am sure that many of you are asking, "Why should we be interested in, and dwell upon the past, with all its mistakes, its tragedies, and sordid miseries? Why not consider instead the triumphs of the present, and plan for an even more brilliant future?"

With full realization of the great value of thinking for, and in the future, I bespeak your attention, for a brief period only, to the value of retrospect. For a knowledge of the past not only enables us to determine present trends, but is of inestimable value in helping us plan intelligently for the future. The very nature of our work requires that we become immersed in details. Our vision becomes narrow; our concepts and our viewpoints tend to be tinged with arrogance, self-satisfaction, and impatience with the views of others. We have no true understanding of our function in the world, and no breadth of knowledge of social progress. There



LEMUEL SHATTUCK
1793–1859
From *Pioneers of Public Health*, M. E. M. Walker, The Macmillan Company, 1930.

* Presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

comes a time when we must pause, and go up to the mountaintop, to obtain complete detachment from our immediate tasks, and to look to the East whence we have come, and to the West, whither we are going.

In so doing, we gain a broader vision, and better understanding of our task. We gain also ***humility,*** for we soon realize that the original ideas that we thought out so painfully have been presented quite effectively many years ago. We gain *patience* and true perspective in the realization that social progress in a democracy is slow, proceeding arduously, step by step. Advances can never move faster than the social consciousness of the average man. We also gain *courage* and *hope* that some of our own ideas that we have fought for, and which have been completely defeated, will at some future time, and long after we are forgotten, emerge as an integral part of community service.

In this discussion we shall present only a small segment of time, and the activities of a single man. But these events serve to illustrate the broad and basic principles of public health progress, and will point to clear-cut analogies which show us the way to further gain. We shall show you also the place in human affairs of the seer, the prophet, the pioneer. We shall not present a leader, since the leader comes after the philosopher. The philosopher formulates his ideas far in advance of current thinking; thus he seldom lives to see realized even a single one of his concepts, no matter how fine and sound they may be. The leader who comes after must carry out the ideas, but he cannot get too far ahead of the people, else he loses his contact with them.

The pioneer has a lonely life. He is misunderstood, misinterpreted, sometimes persecuted, at best treated with friendly, but ill-disguised tolerance. All these things came to Shattuck. He was treated with scant courtesies by physicians, and laymen. His report was buried in the dusty archives of official documents, and he died long before even one of his fifty recommendations was accepted by the community.

My assigned task is to introduce to you the man, to present a brief outline of his life and achievements, and to paint with broad strokes the background of the period in which he lived.

Lemuel Shattuck was born in Ashby, Mass., in 1793,[1] and died in Boston in 1859. His parents were farmers. He had a very limited formal education, but through self-education he qualified himself as a school-teacher and went west to the frontier town of Detroit about 1818 to teach in the district schools. He became interested at once in community welfare.

He organized there, in the wilds of that great wilderness, the first Sunday School in the State of Michigan, and was its superintendent for four years. He returned to the East, married, and settled in Concord. Here he ran a general store for some ten years.

As a member of the school committee in Concord, he reorganized the public school system of the town, and was active in the community affairs.

In 1833 he moved to Boston and entered the book publishing and book selling business. He became a member of the City Council and took an important part in the long controversy over the introduction of pure water into the city.

Shattuck's interest in vital statistics was aroused through his initial interest in genealogy. He attempted to collect accurate data for the history of his own family, and he also wrote, in 1835, a *History of the Town of Concord.* Finding great confusion and inadequacy in the church records of births and deaths, he began a personal and almost solitary campaign to obtain the official recording of vital data. In 1842 he was successful in securing the passage of an act for a

registration system of vital statistics for Massachusetts, which became a model for all other states. Since there was no State Board of Health, the Act provided that the returns should be made to the Secretary of State. This plan remained in effect in Massachusetts for over one hundred years.

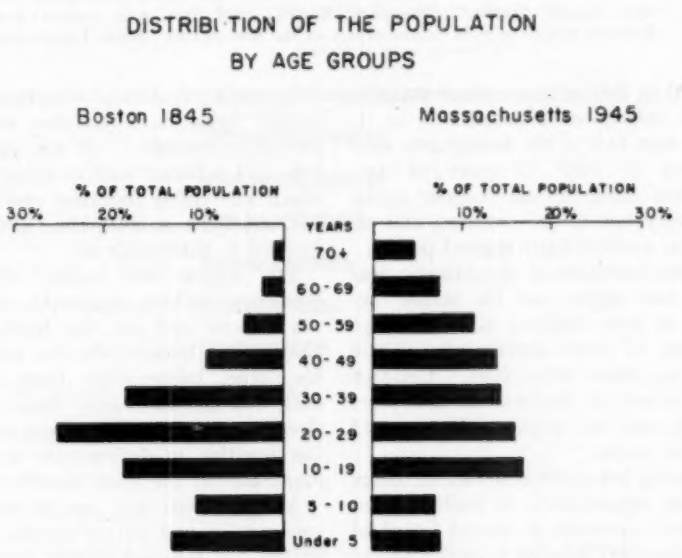
The *Report* of the "Census of the City of Boston"[2] in 1845 was a precursor of his more famous report of 1850, but in many ways it is equally important, for, in it, one can obtain a very clear picture of the economic and social conditions of that day.

The nation was in a period of vigorous growth. James Polk was President from 1845 to 1849. His diary[3] emphasized the following important events during his term:

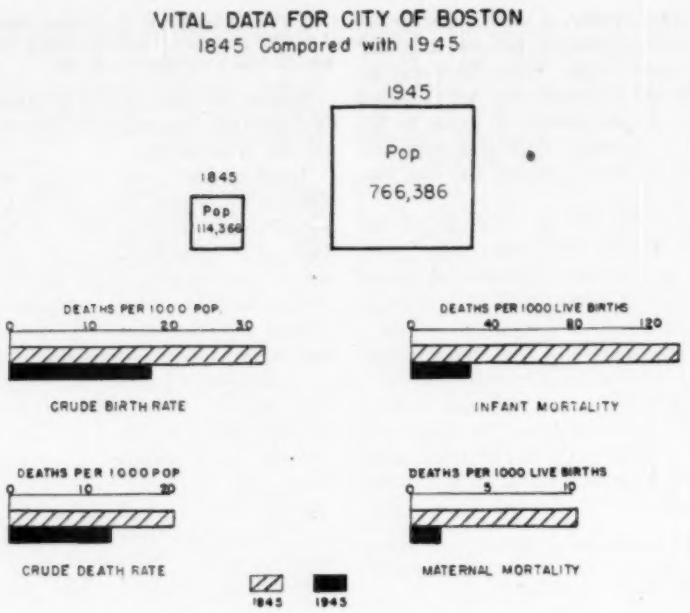
1. The termination of the war with Mexico and acquisition of California and the Southwest
2. The annexation of Texas
3. The settlement of the Oregon boundary
4. The increase of national feeling concerning the whole question of slavery

During his term, gold was discovered in California, and the great migration to the far West began.

Immigration[4] from Europe was at flood tide. From 1790 to 1810, some six thousand persons came to America each year from Europe, but this flow was completely stopped by the war with Britain in 1812. Laws regulating immigration were passed in 1819, but during the subsequent ten years only 150,000 persons entered The States. Then came the political persecutions in Germany and the potato famine in Ireland. These initiated the avalanche. Over four million persons came from Europe to America from 1819 to 1855. Of these, 1,700,000 were Irish, and 1,200,000 were Germans. In 1848 alone, 230,000 entered our borders. The peak was



GRAPH I—*Distribution of the Population by Age Groups.* This graph shows preponderance of the younger age groups in the population a century ago. Data for 1845 from Lemuel Shattuck's Census of Boston. Data for 1945 from the Massachusetts State Board of Health's Annual Report.



GRAPH II—*Vital Data for City of Boston.* The vital data for 1845 were obtained from Lemuel Shattuck's Census of Boston; 1945 data were secured from Boston's Health in 1945, official report of the Boston City Health Department.

reached in 1854 with a total of 400,000. Males outnumbered females 2 to 1. More than half of the immigrants were between 15 and 30 years of age. Laborers made up the largest quota, with very few skilled workers, and almost no professionally trained people.

Industrialization of the Atlantic Seaboard had begun, and the textile factories of New England absorbed large numbers of these immigrants. There were no child labor laws. Children went to work in the factories at 8 years of age, and the working day was 12 hours or more.

Housing laws were nonexistent. There were no departments of health; when epidemics occurred, a special board of physicians was selected to deal with the immediate situation. Isolation, quarantine, and even the reporting of communicable disease was opposed because "(a) these regulations interfered with private rights, and (b) they were injurious to business." It was generally held that a disease such as scarlet fever, which was highly prevalent and severe, "occurs under no fixed laws, and seems inclined to abide with us."

The nation was young, vigorous, boisterous, callous, exuberant, with all the virtues and all the faults of a gangling adolescent, who has outgrown his clothes, broken away from his parents, and has awkwardly tried out his strength. He is uncertain and insecure, but bursting to demonstrate his great importance to the whole world.

Massachusetts was one of the more conservative and settled sections of the nation, but foremost in the coming industrial revolution. It must also be remembered that it was largely New England men who gave the impetus and

leadership to the western expansion.

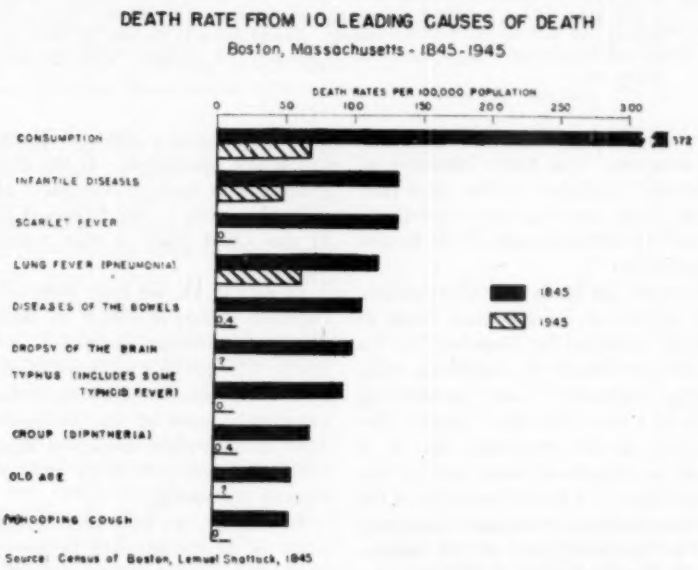
As I have said, the Shattuck *Report* of 1845 on "Census of the City of Boston" gives us an accurate picture of the mode of life and the state of civilization in the nation as a whole.

From the *Report* of 1845, we have compiled certain simple vital data which are comparable with similar data for the Boston of 1945, just a century later.

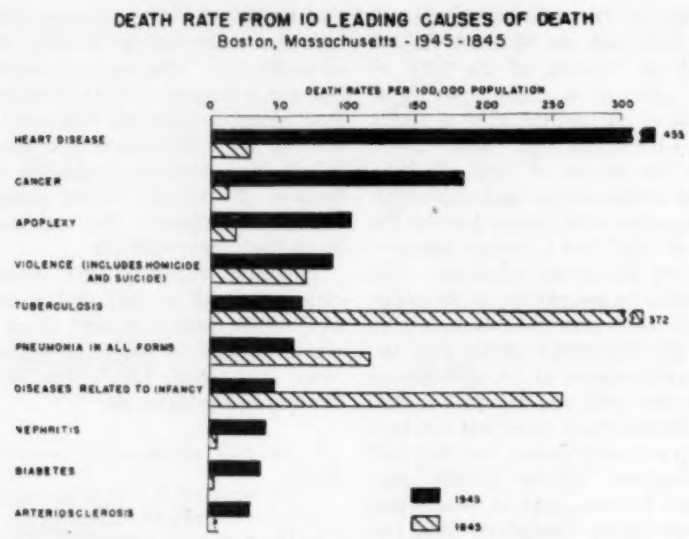
The city has grown sevenfold. The distribution by age groups of the population in 1845 and 1945 is shown in Graph I. The graph shows that the city, once composed of young, vigorous men, is now staid, and well past middle age. The Boston of 1845 was not only made up of young people, but they had large families. Males greatly outnumbered females; most of these young men were recent immigrants from Ireland. The birth rate was very high (see Graph II), with a correspondingly high death rate and a shocking infant mortality rate. The maternal mortality rate was a tragedy. In the slums of the city, Shattuck says the birth rate was over 60 per 1,000 population, and the infant death rate was estimated to be between 300 and 400. In the immigrant section, he estimates that one mother in 37 died from childbirth.

We have tabulated the important causes of death in 1845 and, in so far as possible, have compared them with similar causes of death in Boston in 1945 (see Graph III). The striking features of this chart are:

1. The high prevalence of communicable diseases
2. The heavy toll in 1845 of tuberculosis
3. The seriousness of scarlet fever
4. The absence of degenerative diseases as leading causes of death



GRAPH III—*Death Rate from 10 Leading Causes of Death, Boston Massachusetts 1845–1945.* This graph shows an almost entire disappearance in 1945 of the important causes of death 100 years ago. Data from Census of Boston, Lemuel Shattuck, 1845; and Annual Report of Massachusetts State Board of Health, 1945.



GRAPH IV—*Death Rate from 10 Leading Causes of Death, Boston, Massachusetts 1945–1845.* This companion graph to Graph III shows that degenerative diseases have replaced communicable diseases as important causes of death after a 100 year period. Only tuberculosis, pneumonia, and diseases related to infancy are still in the first ten causes. Comparisons in Graphs III and IV are not completely reliable, since the terminology has changed during the past 100 years.

The terminology of 1845 is somewhat obscure. The term "diseases of the bowels" includes for the most part typhoid fever and bacillary dysentery, but excludes inflammation of the bowels (appendicitis).

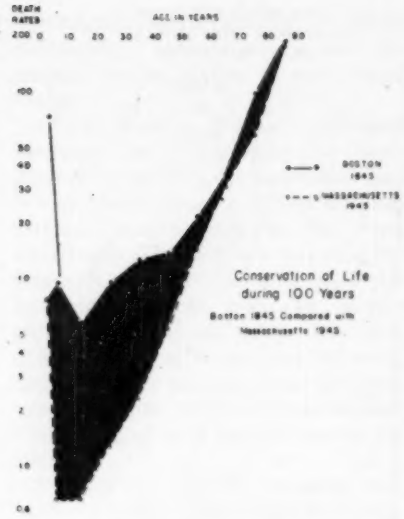
Dropsy of the brain or hydrocephalus, which is given as an important cause of death, is described by Thatcher[5] as "a very serious disease of childhood, commencing suddenly, and terminating fatally in a very few days. Such is the ambiguity of its symptoms that it is difficult to determine what are its real characteristics. The indisposition of the child is sometimes attributed to teething or to a disordered state of the bowels. Frequently it resembles the common febrile complaints of childhood."

This disease dropped out of the nomenclature within a few years. It was like the "Hives," which was frequently given as a cause of illness even in the last generation. If the child had a fever with rash, it was the "Hives," without a rash, it was "Inward Hives." If the child died, it had "the Bold Hives."

In Graph IV we have compared the common causes of death in Boston in 1945 with similar causes of death in 1845. The graph speaks for itself.

The degenerative diseases have almost completely replaced the contagious diseases as important causes of death. A comparison of 2045 with 1945 will be equally interesting.

In Graph V we have presented a summary of deaths in 1845 by age groups and compared these rates with 1945. The data for 1845 are from Boston; those of 1945 are from the whole State of Massachusetts. The rates are determined for each 1,000 of the popula-



GRAPH V—*Conservation of Life during a 100-year Period.* This semilogarithmic graph indicates that the proportionate conservation of life in Boston has been greatest in the early decades, but continues throughout life. Sources: Census of Boston, Lemuel Shattuck, 1845. Annual Report of the State Board of Health, Massachusetts, 1945.

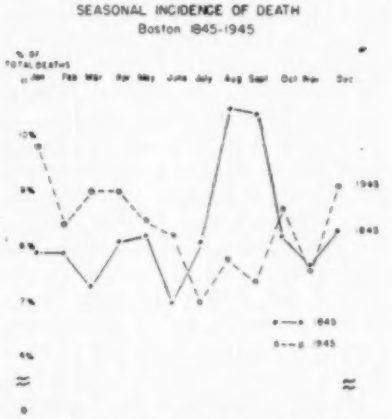
tion within that age group. The graph may be entitled "Conservation of Life." It shows clearly that the saving of life has not been limited to infants and school children but extends throughout the life span. Only in the seventh and eighth decade of life does the death rate correspond in 1945 to that of a century ago. How interesting it will be to make a comparison of this type in 2045.

We have also made a comparison of deaths in 1845, by months, with similar data for 1945 (Graph VI). In the last century, the summer months were most dreaded, and winter was by far the most healthy period. A hundred years later this picture is exactly reversed.

From these simple comparative data, it is quite clear that the great public health need in Boston a century ago was a well organized, effective community plan for control of communicable disease.

As already noted, Mr. Shattuck had appreciated the primary importance of pure water, and had been active in the City Council for ten years in securing a municipally owned adequate water supply to be piped from Framingham. It required a period of ten years to consummate this plan (1848).[6]

Boston was in advance of other communities also in diverse aspects of environmental sanitation. In 1848, the great cholera epidemic began. The infection came from Europe, and spread south and west to devastate the whole nation. The Boston City Council forthwith organized itself as a Board of Health. Every policeman was made a sanitary inspector, and the town had such a thorough house-cleaning as it had never experienced. Streets and alleys were scrubbed, rubbish was burned, and privy vaults were emptied. Cholera came, but did not obtain a firm foothold. The pest house opened June



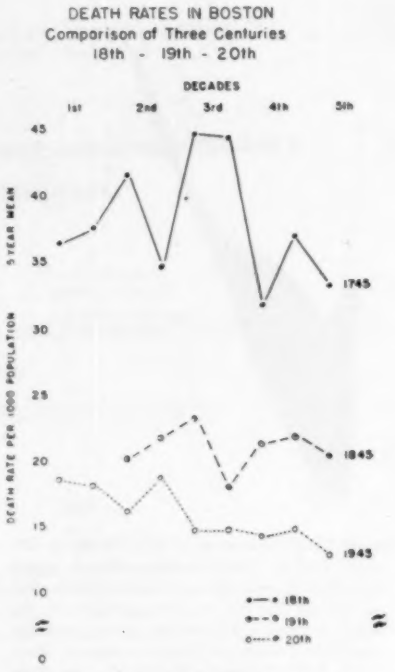
GRAPH VI—*Seasonal Incidence of Death.* This graph shows the monthly percentages of total deaths in Boston for 1845 and 1945. The graphs are exactly reversed in that in 1845 the winter was a period of low death rate, August and September showed the highest death rates; in 1945 the lowest death rates are now in the summer.

29, and could be closed on November 15, with only 262 admissions, of whom 166 had died.[7]

The physicians of the community were not interested in preventive medicine, but confined themselves to the treatment of disease. Doctors were numerous. In the classification of occupations in Shattuck's Census of 1845, there were 680 persons in the city of 114,000 population whose occupation "contributed to health." This list included, of course, some auxiliary professions, such as sextons, undertakers, botanic medicine dealers, leechers (15—all women), and one electrician. But there were 236 *bona fide* doctors, 169 druggists, and 57 dentists. Ninety women were classified as nurses, all of course with practical training only. Ten of the doctors were women. Thus, the medical profession, in proportion to the population, outnumbered the physicians of Boston today. But what doctors!

It must be remembered that there were few restrictions on medical practice. Physicians were trained by studying with another doctor as praeceptor. Formal medical training consisted of a four months' course of lectures. With a few exceptions, the medical colleges were not under university auspices. A few leading doctors in any community would simply organize a medical school, give a series of lectures, and divide the fees. The American Medical Association was founded in 1847. Its original purpose was, primarily, to raise the educational and ethical standards of the medical profession, and to curb, in some degree, the disgraceful practices of badly trained, grossly unqualified physicians.

Medical[8] research in all of America was practically nonexistent. The American Association for the Advancement of Science was founded in 1848 and is celebrating its centennial this year. But it was made up largely of geologists, with almost no physicians in its membership. (It is true that John Collins Warren, a surgeon of Boston, in 1837 attended a meeting of the recently founded British Association for the Advancement of Science in London and, on his return, agitated for a similar society in America, but to no avail.)



GRAPH VII—*Death Rates in Boston.* Comparison of death rates in Boston over a period of three centuries. The data for the 18th century are taken from church records and are probably underestimated. The 19th century data are from Shattuck's Census of Boston, 1845; 20th century data are from Boston's Health in 1945, 74th Annual Report of City Health Department. The striking feature of this graph is the extraordinary high death rate of the pioneer period.

Shryock[9] states that in 1840, "Medical research had not permeated even the best medical centers. The schools remained didactic, clinical teaching barely existed, and pathological investigation was sporadic." Samuel Jackson, commenting favorably upon the inten-

sive medical research in Germany, added indignantly, "not one man is now conducting similar studies in the United States."

Oliver Wendell Holmes[10] published his essay *The Contagiousness of Puerperal Fever* in 1843, but his observations fell on sterile ground. Epidemiological concepts were fragmentary and most inaccurate. The difficulty was that the theory of contagion did not explain the fact that diseases such as plague, cholera, typhoid, and yellow fever frequently were not transmitted following direct contact, whereas cases of these infections often arose with no demonstrable contact with another case of the disease.

Furthermore, scientific research was not fashionable. The commercial spirit pervaded the whole nation. Money was the goal of every man. It was the only criterion of success. The physician's only means of support was clinical practice, and there was little or no prestige in research. Those who might engage in clinical investigation as a primary pursuit were regarded by their fellows with scorn and suspicion, or at best, as hair-brained eccentrics.

The average income of physicians was estimated in 1845 to be about $800 per annum, of which $600 was net profit. But a dollar in 1845 had greater purchasing power than a century later.

Jarvis,[11] a physician, wrote a series of articles in the *Atlantic Monthly* in 1869 on the "Increase in Human Life." He pointed out that a good mechanic in 1821 worked a full day to earn the equivalent of a bushel of wheat; whereas in 1861, he could earn a bushel of wheat in one-half day. By 1948, a skilled artisan can earn the equivalent of a bushel of wheat in about 48 minutes of an 8 hour day. Thus in 1848 as in 1948, the wages per hour of a skilled laborer are greater than the hourly rate of average annual income of a practising physician.

Hospitals were for the poor. The Boston Dispensary had served for many years as a public clinic for the sick poor, and the Massachusetts General Hospital, in 1848 as in 1948, was one of the leading philanthropic hospitals of the nation. The concept was just emerging that the community was directly responsible for providing a municipal hospital for care of the sick poor, and a proposal had been advanced for establishment of the present Boston City Hospital. Treatment of mental disease had not been widely recognized as an official state responsibility.

In brief, the City of Boston in 1845, representing the more cultured portions of the United States had no concept of community responsibility for the promotion of the public health. There was no local or state department of health. Communicable disease took an enormous toll, particularly in the early decades of life. There was no real understanding of the epidemiology of infectious diseases, and methods of control were primitive and ineffectual. Official registration of vital data had just been introduced, but reporting of contagion was not established. Physicians were poorly trained, with no interest whatever in public health or preventive medicine. Medical research, in fact all scientific research, was nonexistent. Some attempts were made to provide for the general sanitation of the city under official auspices, but the relation of the basic factors in environmental sanitation to prevention of illness was poorly understood.

It was in this completely inhospitable environment that Shattuck compiled his report in 1850. He was actively opposed by physicians, as well as by his peers in the legislature. Bowditch notes[12] (in 1876), "I remember Mr. Shattuck well. Calm in his perfect confidence in the future of preventive medicine to check disease, he walked almost alone the streets of his (native) city,

not only unsustained by the medical profession but considered by most of them an offense for his earnest advocacy of what seemed to the majority of physicians to be out of a layman's sphere, and withal of trifling moment, compared with the importance of our usual routine of practice. The public, ignorant of hygiene, treated him no better."

One can readily discern the source of Shattuck's stimulus. He was an omnivorous reader, and his interest in vital statistics led him inevitably to study the pioneer activities of another layman, Chadwick of London, the founder of sanitary science in England. Chadwick published his famous report on *The Sanitary Conditions of the Laboring Classes of Great Britain* in 1842. Shattuck was familiar also with the work of the great British vital statistician, William Farr, and drew many of his ideas and much of his inspiration from Thomas Southwood Smith and from John Simon. The list of books which Shattuck recommends for sanitary libraries and which is appended to the 1850 report, shows clearly that he was quite familiar with the advances in sanitary knowledge that had occurred during the recent years in Europe, and particularly in France, Germany, and England. From these sources of information and methods of procedure, he drew the inspiration to write the *Report of the Sanitary Commission*.

He secured the assignment to write this report by devious measures. Shattuck in 1847 was a member of the Boston City Council and had been selected to represent the city in the State Legislature. The American Statistical Association, of which Shattuck was a member, suggested to the State of Massachusetts in 1848 that a "Sanitary Commission" be appointed, "to prepare and report to the next General Court a plan for a sanitary survey of the state, embracing a statement of such fact and suggestions as they think proper." This wording is, fairly obviously, Shattuck's own. The proposal was accepted, and a Commission of three appointed by the Governor: one Whig, one Democrat, and one Free Soiler. They were Lemuel Shattuck of Boston, Nathanial P. Banks of Waltham, and Jehiel Abbott of Westfield. Mr. Shattuck was chairman. One can be quite certain that Mr. Shattuck arranged for the original suggestion, engineered the committee appointment, and had his outline of the survey all prepared and the *Report* partially written long before authorization was secured. Of Mr. Banks and Mr. Abbott we know little, either before or after the report was written. Apparently, they played no part whatever in the organization or formulation of the survey, though they are listed as joint authors and are, in theory at least, equally responsible with Shattuck for the ideas that it contains.

This is the setting and these are the events that led to the writing of the Shattuck *Report*. My colleagues on this symposium will now interpret the report to you.

REFERENCES

1. Walker, M. E. M. *Pioneers of Public Health*. Macmillan, 1930.
2. Shattuck, Lemuel. Census of Boston for 1845. *Report to the Committee of the City Council*.
3. Polk, James K. Diary of, 1845–1849. A. C. McClurg, 1910.
4. Bromwell, W. J. *History of Immigration to the United States*. Redfield, 1856.
5. Thatcher, James. *Modern Practice Prevention and Cure of Disease*. Cotton and Barnard, 1826.
6. Introduction of Pure Water into the City of Boston. Compiled by a member of the Board, 1868.
7. Chambers, J. S. *Conquest of Cholera*. Macmillan, 1938.
8. The Public Health Movement. *Annals American Academy of Social and Political Sciences*, 1911.
9. Shryock, R. H. *American Medical Research*. The Commonwealth Fund, 1947.
10. Holmes, Oliver Wendell. The Contagiousness of Puerperal Fever. *New Eng. J. Med. & Surg.*, Apr., 1843.
11. Jarvis, Edward. The Increase of Human Life. *Atlantic Monthly*, 1869.
12. Bowditch, Nathaniel. Public Hygiene in America. *Proceedings International Medical Congress*, Philadelphia, 1876.

Lemuel Shattuck—Still a Prophet

Sanitation of Yesterday — But What of Tomorrow? *

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NOT quite 100 years ago the Governor of the Commonwealth of Massachusetts was authorized to appoint three persons to prepare and report a plan for a sanitary survey of the state. The distinguished Bostonian, Lemuel Shattuck, with two associates, Nathaniel P. Banks, Jr., and Jehiel Abbott, prepared such a document covering an examination or survey of the different parts of the Commonwealth "in order to ascertain the causes which favorably or unfavorably affect the health of its inhabitants."

The Commonwealth was fortunate in the choice of Lemuel Shattuck as the chairman of the group. On the submission of the report on April 25, 1850, there emerged one of the most statesmanlike and significant contributions to sanitary science within the last century. The report demonstrated a vision and an imagination rarely surpassed in documentary public health material. It covered the wide range of physical impacts which have confronted man from the beginning of history. It included a number of items which even today continue to constitute part of the major stresses under which man still lives. It listed cogent reasons for sustained public interest in and control of nuisances, the atmosphere, water supply, and sewerage, buildings, housing, stream pollution, salt water travel, tenements, refuse collection and disposal, smoke, public health education, and innumerable additional philosophical and administrative aspects of preventive medicine.

Viewed in retrospect, the wide coverage of the report is impressive but not surprising, inasmuch as it reflected the comprehensive interests, particularly of the chairman of the Commission. Most people are perhaps still unaware that Shattuck was a member of the Common Council of Boston and as early as 1838 initiated the first resolution for the creation of a major water supply for the City of Boston. He combined in himself, therefore, not only the imagination and vision required for anticipating the necessities of the future, but had also an equally keen awareness of the necessity for preparing the way for acceptance of these ideas by the public and by the profession.

THE CENTURY'S ACCOMPLISHMENTS

In the light of this marvelous charter for public health action in the State of Massachusetts, what happened in the intervening century since its presentation? And, more important, what of tomorrow's objectives?

The record of the past is excellent, but unbalanced and incomplete. During

* Presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

the past 100 years, professional groups were unanimously agreed that a safe and healthy environment for everyone was a prerequisite to most other activities aimed at preserving and improving the public health. And much was accomplished under this banner. It would be fruitless to enumerate statistically all of the details of these accomplishments. That they were significant only a few selected observations will demonstrate.

As late as 1900 there were only 3,200 public water supplies in the entire United States, purification plants were few, the quality of the water was generally poor and the death rates from water-borne diseases were high. Today some 85 million people are supplied with water through some 14,000 systems, providing a generally excellent quality.

The death rates from the filth-borne diseases, such as typhoid fever, dysentery and diarrhea-enteritis, have dropped to insignificant figures. A half century ago 23,000 people died of typhoid fever in this country and 100,000 died from diarrhea-enteritis and the dysenteries. In 1944 the deaths from typhoid fever were less than 600 and from the other enteric diseases approximately 15,000.

The situation in regard to the removal of sewage from built up communities has shown a similar improvement. Sewerage systems were available to only 25 million people in 1900, with only 60 sewage treatment plants serving about 1,000,000 people. Today more than 70,000,000 people are served by sewerage systems, and more than 5,500 treatment plants have been installed. These serve about 42,000,000 people.

In the field of milk pasteurization, not a single first class commercial plant was in operation 50 years ago, and today more than 70 per cent of our market milk supply is pasteurized.

WHAT OF TOMORROW?

Measured by these indices the accomplishment is good. A more realistic view of the future, however, discloses no overwhelming basis for basking in the glory of the past. When we ask what of the future in the control of the environment, we do so in the fond hope that the future may hold simpler and fewer tasks, more refined efforts, and even diversions of major character toward new and unexplored fields. The interested worker in sanitation might hopefully turn to the future with the assumption that his task was accomplished, except that the record of familiar things yet to be done is disconcertingly staggering. The evaluation of the prospects of the future must necessarily be made upon a broader base than that of the State of Massachusetts, even though that state alone gives many of the indices of future conquest which may be paralleled in the rest of the United States and may be multiplied a thousandfold in many parts of the rest of the world. It is curious that, when we look to the future, we rediscover the essential elements of program in the Shattuck survey of the past. What are the things that remain to be done and what are the additional objectives in sanitation?

WATER SUPPLY AND WASTE DISPOSAL

In the State of Massachusetts, as in the rest of the United States, it is doubtful whether there is a single stream today which has not deteriorated in a major sense in its quality since 1849. There is hardly a city in Massachusetts, or one in the rest of the United States, in which the conditions of housing are not essentially worse than those at which the Shattuck report directed severe criticism. There is not a city in Massachusetts or one in the rest of the United States, with pathetically few exceptions, in which the conditions of the atmosphere are not immeasurably worse today than they were when Mr. Shattuck leveled his attack on this phase of the environment.

On January 15, 1872, the famous artist and explorer, F. S. Dellenbaugh, recorded in his diary on the exploration of the Colorado River[1] that "The frontier town was a ghastly hodge podge of shacks in the midst of a sea of refuse." In 1948 several of my young friends canoeing down the Connecticut River recorded the same phrases in their diary, and I hasten to add that the same could be said about a number of other major streams.

Although somewhat over $10,000,000,000 have already been spent in this country for water supply and waste disposal facilities, a recent review[2] of the additional sanitation facilities required in these fields in 1947 shows them still in excess of $8,000,000,000. There are still almost 6,000 communities in this country with no public water works system. There are over 9,000 communities which need sewerage systems. In rural areas more than 33,000,000 people lack satisfactory sewage or excreta disposal facilities of even the simplest types. Some 70,000,000 people in 8,300 communities need modern facilities for collecting and disposing of garbage and other municipal refuse.

Houses have been built in the last 10 years with inadequate sanitary facilities which promise to become the slums of tomorrow, and of a not too distant tomorrow. The rural areas of this country have so far been beyond the reach of the practicable community facilities. In these areas the greatest shortages of sanitation facilities exist. And not all of these difficulties are attributable to the lack of money. They wait for solution for a Lemuel Shattuck to dramatize the necessities and, more important, to emphasize the practical engineering economic answers.

HOUSING

In 1947 there were approximately 41,625,000 dwelling units in the United States. In the urban areas over 5,000,000 of these, or 22 per cent, needed major repairs or lacked a private bath and toilet. About the same ratio of inadequacy prevailed in the New England States. In 1947, in the South, over 80 per cent of all the rural farmhouses were without running water. Only 20 per cent of the farmhouses in the entire country in 1947 had both bath and toilet facilities. Sixty-seven per cent of these farmhouses lacked running water within the house. Some improvement has occurred between the period 1940 and 1947, because in this period the figure of dwelling units for the entire country provided with private bath and toilet increased from 55 to 66 per cent, while the number of houses without running water declined from 30 to 22 per cent of the total.

A glance at any of the special problems in the field of housing and of sanitation presents even a more gloomy picture. *A Medical Survey of the Bituminous Coal Industries** made in 1947 is an example of this gloomy picture, best summarized in the following words from the report thereon (page 20):

> Although the world of today is one of nuclear fission and jet propulsion, of international aviation and frequency modulation, of frozen foods and penicillin, the simple bathtub or shower is still a rare item in the houses miners and their families occupy in coal-mining camps. Of the 1,154 company-owned houses inspected, only 121 contained bathrooms in which there were either tubs or showers, or both. . . . In privately owned houses occupied by miners and their families, 31 per cent had bathrooms with tubs or showers or both.

In these same areas privies are still the most common method of disposal in both company-owned or controlled communities and in other communities.

The report makes a further pertinent comment, which might be appropriately

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* Supt. of Documents, Gov. Ptg. Office, Washington, D. C. Price, $1.75.

applied to other situations than the coal mining camp. The comment is as follows:

> The issue is not one of raising or lowering the standard of the miners to the levels of white collar workers or cotton pickers or any other vocational group. Rather, this study has been grounded on the premise that, all comparisons to one side, coal miners should share as much as possible in the dividends of good living sought by all Americans. It is granted that the deficiencies described are not unique if a similar survey were conducted among share croppers or itinerant harvesters. It is not unlikely that some conditions would be discovered so deplorable as to make those described herein seem rosy by comparison. In the very capital of the United States, approximately 100,000 persons[3] still draw their drinking water from yard hydrants and rely upon privies. Yet the lesson to be derived is not that the nation can well afford, therefore, to take time to ameliorate the condition of the miners, but that assistance should and must be extended to all citizens whose living conditions dispute the complacent assumption that man has attained the peak of progress.

MILK PRODUCTS AND FOOD

In the last 10 years almost 2,500 disease outbreaks have occurred from milk products and other foods, accounting for some 100,000 cases. The sanitary methods of producing, handling, preparing, storing, display and serving of foods offer almost an unexplored field for the professional worker in sanitation. Perhaps no small part of this activity presents a problem in public health education, although engineering ingenuity and research are required for the development of adequate facilities in food processing and handling establishments, as well as in the home.

Some 500 American communities now require the pasteurization of their milk, but there are still far too many communities, particularly the smaller ones, where pasteurized milk is unavailable.

INSECTS AND RODENTS

Even with the development of the miracle insecticides and rodenticides, such as DDT and "1080," most professional judgment is agreed that a more basic job of the elimination of man-made breeding places of insects and rodents must be done if the full effect of fly and insect control on diseases in general is to be accomplished. The insecticides and rodenticides developed in the past few years will bring about many accomplishments on a more economical basis than has hitherto been possible. The important fact remains, however, that no substitute for sound municipal housekeeping has yet been discovered, no matter how high our enthusiasms may rise for such substitutes, in the first flush of excitement at new and helpful discoveries.

On a world-wide basis, the suppression of the pestilential diseases is hardly imaginable without the existence throughout the world of satisfactory sanitation, and without the complete suppression of the important vectors of plague, yellow fever, typhus, and malaria. It is still true that, while many parts of the world are effectively protected against certain diseases such as cholera, little or nothing has been done to attack the endemic foci.

Throughout a large portion of the globe, millions of deaths and hundreds of millions of cases of malaria still occur annually. This disease alone has more impact than almost any other factor on the working capacity of populations and on the production of food. The economic consequences of this disease are immeasurably great. Insecticides now make it possible to contemplate effective malaria control in many malarious countries. The discovery of DDT-resistant strains of house flies has given rise to some alarm that some anophelines may be or may become similarly resistant. The work in Pakistan, in Sardinia, and in Cyprus will offer opportunities for evaluation of the varying procedures. The future still holds a major challenge for the profes-

sional worker in this field of sanitation.

ATMOSPHERE

Mention has already been made of the slow progress in the control of pollution of the atmosphere. Shattuck emphasized the significance of this field of activity, in the following terms (page 143): "We recommend that provision be made for obtaining observations of atmospheric phenomena, or a systematic and uniform plan at different stations in the Commonwealth." And on page 147, "It opens a vast field for examination, which is as yet almost entirely unexplored; but it promises results of great value and importance to science and to human life." It is pertinent to point out that our understanding of the effects of atmosphere upon the human population is not much better advanced than it was in Shattuck's day. The deaths in the Meuse Valley of Belgium in 1930 and in Donora, Pennsylvania, in the last 10 days are simple reminders, more dramatic than the smog of Los Angeles, that we still live in a world in which the missing physiological links between contaminated atmosphere and human reaction are many and subtle. Did these people die because of the phenomena and if so, why?—are important questions to be answered!

The industrial chemical operations which take place in a highly complex world such as ours, the number of which now exceeds 20,000, have never been completely evaluated in relation either to internal or external atmospheres. McCord has properly pointed out that we never catch up with the impact of industrial wastes to get ahead of them.

This is strikingly exemplified in the recent decision of the National Cancer Institute to create an environmental cancer section to undertake one of the first intensive surveys of man's environment with particular reference to carcinogenic circumstances, occupation, diet, climate, parasitic infections, etc. The environmentalist has much ahead of him with respect to this particular group of diseases, in which so many characteristics parallel those of the more familiar infectious diseases.

ACCIDENTS

One more area of future activity should be mentioned. It is not included merely to exhaust the list, because many additional aspects of environmental control have not been covered in this discussion. In 1947 some 101,000 deaths occurred in the United States from accidents. The 100,000 mark has been exceeded only four times before in the history of this country, 1934, 1936, 1937, and 1941. It has always been a considerable mystery as to why health departments have given little or no attention to these major causes of death. It is well to remind ourselves that here is one of the great killers of the modern age. It is therefore gratifying to record that in the 1947 report of the special commission to study and investigate certain public health matters in Massachusetts, emphasis is placed upon the death rate from accidents. Motor vehicle accidents alone caused 32,500 deaths in 1947. Official health department contribution in general to the amelioration of this particular area of mortality hitherto has been largely one of rationalizing itself out of any responsibility, an intellectual contribution hardly in consonance with the normal preambles to public health appraisal sheets.

Even though the risk of prophecy is great, one thing is certain for the future, that in the field of the control of environment, more remains to be done in the next century than has been done in the previous one. The Shattack charter, with minor adjustments in language, is an excellent charter for the next 100 years. In sanitation, great strides have been made in the last century, but the

correctives, in number, in kind and in effect have never caught up with the actualities. It still remains true, and I suspect that it will continue to remain true forever, that a sanitary environment for everyone, in Massachusetts, in the United States and in the world, in the words of Shattuck, "is attainable but is rarely attained." This work must go on and, in carrying it on, we must rely on the same three fronts of education, research and practice.

REFERENCES

1. *A Canyon Voyage—1871 and 1872*, Yale University Press, 1926.
2. Nation-wide Inventory of Sanitation Needs, *Supp. No. 204, Pub. Health Rep.*, Apr., 1948.
3. Winslow, C.-E. A. *Health and Hospital Survey of Municipal Washington, 1946.*

Local Public Health Services Bill Reintroduced

The Local Public Health Services Bill was introduced into the U. S. Senate on January 17. The bill is substantially in the form reported out favorably by the House Committee on Interstate and Foreign Commerce of the 80th Congress. Known as the Local Health Units Act, S 522, it was introduced on a bipartisan basis by five Democratic and five Republican Senators as follows:

Democrats

Virgil Chapman, Kentucky
Paul Douglas, Illinois
Lister Hill, Alabama
Hubert H. Humphreys, Minnesota
Estes Kefauver, Tennessee

Republicans

Guy Cordon, Oregon
Wm. F. Knowland, California
George W. Malone, Nevada
Leverett Saltonstall, Massachusetts
H. Alexander Smith, New Jersey

This bill has been referred to the Senate Labor and Welfare Committee of which Elbert D. Thomas of Utah is chairman. Other members are:

George Aiken, Vermont
Forrest Donnell, Missouri
Paul Douglas, Illinois
Lister Hill, Alabama
Hubert H. Humphreys, Minnesota
Wayne Morse, Oregon
James Murray, Montana
Matthew Neely, West Virginia
Claude Pepper, Florida
H. Alexander Smith, New Jersey
Robert Taft, Ohio

The membership of the Subcommittee on Public Health which will pass on the bill before it goes to the full committee had not been appointed at the time of going to press.

In the House the Local Public Health Services Bill in the form originally considered by the Interstate and Foreign Commerce Committee of the 80th Congress was introduced by the same Congressmen who presented it last year, J. Percy Priest of Tennessee and James I. Dolliver of Iowa. Their bills are numbered respectively, HR 267 and HR 785. The Chairman of the House Committee on Interstate and Foreign Commerce is Robert Crosser of Ohio, with other members not yet announced.

Lemuel Shattuck—Still a Prophet

The Vitality of Vital Statistics *

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SOME hundred years ago, Lemuel Shattuck defined statistics as "the science or art of applying facts to the elucidation and demonstration of truth" (283).† He called it "the basis of social and political economy, and the only sure ground on which the truth or falsehood of theories can be brought to the test."

Shattuck was anticipating (and refuting in advance) objections which would be raised to the fifty recommendations set forth in the *Report of the Sanitary Commission*. Since so much of the *Report* is based on the analysis of vital data in Massachusetts and elsewhere, the expected objection arises very early. The hypothetical Philistine says: "I don't think much of your statistics; you can prove anything by figures." The ring of this is all too familiar to the ears of a statistician, who frequently finds himself in the position of priest of a religion which, alternately reviled by the laity, is again called on by them to pull a prolific rabbit out of a magic silk hat —or, perhaps, in this case it should appropriately be a dunce cap.

Carefully defining what he means by "statistics," Shattuck goes on to point out that they do not consist merely, or even largely, of columns of figures. He uses figures, he says, as the representatives of facts, and as such he finds them "far more useful and important than the fiction and theory, the assumption and assertion that have occupied so much of public attention."

He very clearly realizes the function of figures in statistics when he says that "combination and deduction are required to give them full effect." The entire *Report* is an excellent example of the intelligent use of numerical data for the deduction of justified conclusions, which is the essential groundwork of a science. A science develops, as a rule, through the advent of minds which can organize recorded knowledge, deduce general relationships, and test them against experience. Such minds are never plentiful: at times a constellation of them arises, to be succeeded by a long sterile period. Shattuck's was one of the earliest of such minds to appear in our science of public health which, after all, is not very old even as measured in terms of recorded history.

Logical thinking has presumably been practised since some remote grandfathers freed their front paws from the chore of walking, or of swinging through trees, and began to use them for the purpose of taking their universe apart to see what made it tick. Even so, most of what we like to call "thinking" is far from logical, and the human race is subject to periodic mass retreats from reason. A Greek Golden Age is followed by a period of medieval obscurity, and a Renaissance of liberal humanitarianism by an eclipse of totalitarian dogma. Yet the night is never com-

* Presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

† Numbers in parentheses refer to pages of the original *Report*.

pletely black, any more than the day is without shadows. The tools of intellectual progress are always at hand for him who has the ability and the will to use them, and no age is without its examples of illustrious heretics who dared stake and concentration camp to maintain "Eppur si muove!"

One of the most powerful tools of logical reasoning is mathematics, and quite regularly the organization of new knowledge and the departure from accepted beliefs is along the roads of mathematical synthesis and analysis. It should not be surprising that Shattuck's attack on his problem was couched in statistical terms — or, if you prefer, that a statistical mind of high order produced a logically outstanding statement of problems which could, at that time, be seen only indirectly; and propounded a solution so complete in its general terms that we have not yet caught up with all its implications.

For, mind you, there was no bacteriology at the time of the *Report of the Sanitary Commission*. Shattuck speaks, as did the eminent physicians of his day, of exhalations and effluvia, of bad airs and of stinks. Since air is to blame for much "zymotic" disease, he becomes curious about meteorological changes and analyzes them in some detail (143). He recommends that stations be set up to study changes in the weather (no mean task in the Boston area) and to relate such changes to the occurrence of various diseases. He points out that some gases, such as hydrogen sulfide, when present in any appreciable amount are a direct danger to health. This may be regarded as at least an embryonic approach to industrial hygiene.

With the advent of bacteriology, cause and effect of "zymotic" diseases became direct and simple; perhaps too simple. An increasing number of us are wondering today whether the role of meteorology in the epidemiologic picture has not been too much neglected; whether we might not with profit return to this recommendation of the *Report* and pursue it farther to see whether it could not yield keys to a few of the many doors still locked against us.

Most of the *Report*, being essentially statistical, deals with relationships that can be measured. It may be noted that Shattuck, influenced as he naturally was by current medical speculation, still had the statistician's obstinate reluctance to accept ideas that he could not support with numerical data. He quotes Chadwick, for instance (188), at some length on the dangers of cemeteries to the public health—but he prefaces the quotation with the statement that Massachusetts has not yet experienced these evils; at least to any great extent.

Shattuck's statistical sources were, by today's standards, fragmentary and sometimes of dubious reliability. Yet he seized on them and milked them dry of reliable conclusions, while avoiding many pitfalls into which he might easily have stumbled. Part of his argument is based on average ages at death, but he points out the fallacies underlying comparisons on this basis (106) and is careful to restrict his own conclusions to similar groups. Clergymen, he notes, over a long period of years died at an average age of 63.5; in more recent years, they have been dying, on the average, 7 years earlier (85). Physicians, similarly, have lost 9 years of life compared to earlier periods (86). But he insists, over and over, that the best measure for comparison, when available, is the specific death rate according to age and other factors (139).

The basic argument of the *Report* is simple and straightforward. Mortality conditions were better in Massachusetts in earlier years; some causes are now making them worse; if such causes have been newly introduced, they can be removed, and conditions restored to at least their previous levels.

Various demonstrable factors are associated, in some areas, with mortality rates higher than those of other areas. At least some of these factors can be eliminated and this elimination should bring the higher rates closer to the lower ones.

Again and again, it is pointed out that mortality increases with urbanization. In cities, the increase is associated with crowding and with what we should now call "socio-economic" factors. Infant mortality, in 1830 already twice as great in Boston as in two "country towns," has risen by another half in 15 years more (82). Mortality in other young age groups has kept pace; older people are about holding their own. Why have these mortalities increased? Well, for one thing, "zymotic" diseases have doubled on the scale of proportional mortality. In 1810–1820, they produced 16 per cent of all deaths (90) and, in 1840–1849, 32 per cent (92). Shattuck calls these diseases the "Index of Public Health." Certain of them have increased enormously in Boston, such as smallpox and scarlet fever. The "typhus" fevers, including typhoid, have not increased and, in fact, are relatively more of a problem in the country. Boston has, on the other hand, a much larger share of the dysenteric diseases of childhood (100). Detailed tables are devoted to the analysis of deaths from tuberculosis (94), which not only causes one-seventh to a quarter of all deaths but takes its victims out of the best and most productive part of the life span. It is emphasized that there is no hope of cure, once the disease is established (98)—it must be controlled by prevention.

Why is there this increase in what we should now, in general, call the infectious diseases? For one thing, it is pointed out that known preventive measures have been neglected: the smallpox vaccination laws have been emasculated (180). For another, people are being herded into smaller and smaller circles. To show the effects of this, English data are quoted (43) showing the relationship of crowding to mortality rates in London. Socio-economic factors are brought in: in Liverpool, even the gentry have a death rate equal to London's worst, or 29/1,000; among workers, it is over twice as high (44) to reach the horrifying figure of 67 persons dying per year in each thousand of the population.

From the Census of Boston, Shattuck takes survivorship curves (102) for various population groups. According to these, overall life expectancy in Newton is similar to that in England, or slightly less. Boston's situation is very much worse while Boston Catholics are very definitely in worse case still. Boston Catholics in those days were, of course, very largely the recently arrived and still economically desperate Irish immigrants. Of them, the *Report* has a great deal to say (200): as the population of Boston becomes more largely foreign born, increased crowding is only one of the bad results. The new citizens contribute more than their share of delinquency and disease, while benefiting out of proportion from school taxes and hospital beds.

In the fifty recommendations for the improvement of health conditions in Massachusetts, it is not surprising to find the need for the provision of vital data eloquently stressed and a system of collection expounded in considerable detail. The twelfth recommendation (126) asks that census information be so gathered and made available as to be of real use to the hygienist. Shattuck says: "An exact knowledge . . . of the living inhabitants . . . is the first . . . element, for estimating their sanitary condition." He then enumerates the facts that should be collected: a list not greatly different from one we might make today (128). He points out one essential: this informa-

tion must be known for each individual, and not pooled in groups (130). He also recommends a more modern system of age grouping than that hitherto employed.

Shattuck finds, as do many of us, that ten years is a long time between censuses. The State Constitution at that time provided for state censuses taken during the same years as the federal ones (133). He points out the absurdity of this and recommends that state censuses be spaced evenly between federal ones: a recommendation since then followed. The blame for the only moderate success of this measure can hardly be laid at Shattuck's door.

In the fourteenth recommendation (135), the need for a comprehensive system of recording vital data is set forth at length. It is pointed out (139) that age-specific death rates are the only fair bases of comparison and that these cannot be found without knowledge of the ages of the population and the ages at which they die. A table is presented (140) illustrating the effect of different population compositions on the crude death rate, and a warning is sounded against the not entirely extinct habit of comparing the salubrity of occupations on the basis of the gross mortalities of the groups involved, without taking into account what differences there may be in the ages of those who work at different tasks. In order to study the natural history of populations, says the *Report*, complete data on births are as necessary as those on deaths, and they should be collected and registered just as carefully.

Shattuck ends this recommendation by a brief statement of twelve principles (141), here even further abridged:

1. Mortality varies uniformly with age.
2. Maintenance of the population is based primarily on the number of married couples in the fertile ages.
3. Excessive births are a *cause*, not a *consequence*, of high mortality rates.
4. Mean age at death and crude death rate are fallacious measures of health conditions.
5. Comparing the dangers of different occupations on the basis of mean age at death or of total mortality of the workers is fallacious.
6. Previous rates cannot be compared with present ones on these bases.
7. Age-specific death rates form the only legitimate basis for comparisons.
8. Immigration and emigration usually distort the age distribution of a population, and so its crude mortality rate.
9. Morbidity and mortality should be studied separately by age, sex, season, occupation and other factors.
10. An accurate census and accurate vital statistics are basic to knowledge of a population, and a sanitary survey is useless without them.
11. The English system of age grouping should be adopted instead of the present, irregular one.
12. Statistics should be under the supervision of the Board of Health to secure uniformity over the entire State.

We could hardly ask for a more comprehensive statement of why statistics are useful, and what they must include in order not to be misleading. The sixteenth recommendation (149) adds a suggested list of causes of death to supersede the medical classification currently in use, which is considered unsatisfactory. Shattuck feels that the causes of disease deserve more attention than does the disease itself (150), and endeavors to construct a classification according to etiological principles. Although his system of causative agents is based on notions a century old, his principle has a very modern sound: particularly in view of our continued inability to get away from a classification based partly on etiology and partly on regional pathology.

Throughout the *Report*, one is struck by the rarity of occasions on which Shattuck is led very far astray by concepts of disease current in his time, some of which look ludicrous enough from the proud point of view of our present rung on the ladder of epidemiologic knowledge. He is a hard-headed business man, and he insists on facts.

As a business man, also, he abhors

waste in the human population as he would in his publishing house. Unnecessary deaths are a criminal waste. They not only cause misery to the individual concerned and to his family, but they throw helpless widows and orphans on the community and so deplete its resources. Unnecessary illness is much the same. It causes suffering; it also reduces productivity and leads to additional expenses. Lacking adequate morbidity statistics for Massachusetts, Shattuck quotes liberally from English sources (174) as to days lost per year due to sickness. He proposes, in the twenty-fifth recommendation (171), that morbidity surveys be carried on to determine the exact load of disease in Massachusetts. In the meanwhile, he is quite sure that conditions here are worse than in England. His reason is simple and convincing: various sickness insurance companies have been formed in Boston and have used English experience as a basis for their premium rates. They have uniformly gone into bankruptcy (177)! He estimated that, in 1849, at any time, over 5 per cent of Boston's population was sick.

In order to do justice to Shattuck's grasp of statistical method—to show how firmly his conclusions are based on sound quantitative reasoning—almost the entire book would have to be quoted. Did he think logically because he was a trained statistician? Or did he become interested in statistics because he had a logical and orderly mind? The choice of answer does not seem to matter greatly.

What does matter a great deal is that by use of Laplace's "good sense reduced to arithmetic" a man, although not a physician, was able to see the essentials of a complicated question and to postulate a workable answer. Perhaps we should say "*because* he was not a physician," since he was to some extent able to stand outside the body of accepted medical ideas of his time and to view them with a certain disinterest and detachment. The lenses he used to help him see more clearly were statistical in their structure.

Medicine and public health, by their very nature, tend to accept and to carry on ideas based on evidence that is anything but solid. The problems are so great; the needs so immediate; the possibility of experiment so difficult; that we easily succumb to the comfortable feeling that whatever we are doing must be of some benefit to a suffering humanity, and should not be questioned. Once a concept is deeply imbedded in our thinking it requires unusual ability and pertinacity to dig through the surrounding layers of custom and association, to bring the concept to the light of day and to subject it to a new and thorough scrutiny.

True enough, vital statistics alone does not enable the questioner to see clearly, to judge soundly, and to act sensibly. But it is an essential tool for the type of mind which Shattuck had; it will be just as essential to the next who may come to tear down old walls and to build new and better on the solid foundations. That is the vitality of Vital Statistics!

Order blank for Report of the Sanitary Commission of Massachusetts 1850 by Lemuel Shattuck appears on page XXXVI.

Lemuel Shattuck—Still a Prophet

The Message of Lemuel Shattuck for 1948 *

C.-E. A. WINSLOW, Dr.P.H., F.A.P.H.A.

Editor, American Journal of Public Health

THE meeting we are holding this afternoon is a striking example of the miracle of the written word. The life of the physical body is brief; but the thoughts of men have acquired immortality through the magic of the pen and of the printing press. We celebrate today the centennary of a printed book through which the ideas of a great pioneer still live and move and have their being.

There are many great books in our field of human thought. Johann Peter Frank, Edwin Chadwick, John Simon, W. T. Sedgwick, Charles V. Chapin produced works which were of compelling influence in their day and are still worthy of our attentive study. But, in my judgment, the *Report of the Sanitary Commission of Massachusetts* is the most outstanding single "Book of Prophecy" in the history of public health.

My own copy of this work was sent by Lemuel Shattuck to the Mayor of Providence, under date of March 4, 1851, with the following letter from the author which is pasted inside the front cover.

"I take the liberty to forward for your acceptance a copy of the Report of the Sanitary Commission which I have prepared and just published. You will please place it in the hands of the Board of Health or other department of your municipal authorities where it will be most useful. Although it contains many things that are evidently of local application, yet other matters will be found of a general bearing which may be useful in any place. If it shall be means of calling public attention to the causes of disease, and of leading to the adoption of wise measures for their removal it will do much good; and this is my only motive in its production."

Many years later, when there was house-cleaning in the Providence City Hall, this volume was thrown out on the town dump. A discerning citizen observed it there, rescued it, and took it to Charles V. Chapin, the distinguished health officer of the city; and in 1930, Dr. Chapin sent it to me with his "affectionate regards." So it is a precious volume, bearing the signatures of two of the most outstanding leaders of American public health.

Most of the 2,000 copies of this report authorized by the Massachusetts Legislature of 1850 have not been so fortunately preserved; and the original printing is a collector's prize. Perhaps some of you may still find a copy on some obscure and dusty book-shelf. Meanwhile, it must be a great personal gratification to all of us that the Massachusetts Public Health Association and the American Public Health Association have coöperated to produce a complete facsimile reproduction of the original report (omitting only its appendices). This should be the first volume with which the young recruit in public health begins the formation of his personal library.

It is a little difficult for us to grasp the significance of the *Report of the Sanitary Commission of Massachusetts*

* Presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

without an effort to realize the America of a century ago to which it was addressed. In July, 1850, Zachary Taylor died and Millard Fillmore took the oath of office as head of a nation of 23 million people. For transportation, the bicycle was available, and Shattuck notes with admiration the wonders of the Morse telegraph system. Only in the 50's, was the New York Central Railroad completed from New York to Albany, and the laying of the Atlantic cable begun. Airplanes, automobiles, electric trolleys, incandescent lamps, turbines, submarines, telephones were all in the womb of the future. The very land on which many of the hotels we occupy now stand was a waste of water and mud, the "Back Bay," not yet filled in for human occupancy.

There had been "boards of health" in Baltimore, New York, Philadelphia, and other large seaboard cities established under the threat of yellow fever in the 1790's; and a law passed in 1849, during a cholera epidemic, authorized towns in Massachusetts to establish boards of health; but these "Boards of Health" were still skeleton organizations dealing only with acute epidemic emergencies and particularly obnoxious local nuisances. The Board of Health of the City of Boston was established only in 1872, after the great fire of that year. There were, of course, no state boards of health, Massachusetts leading the way in 1869. As Dr. Henry P. Bowditch said, Shattuck's report "fell stillborn from the hands of the State printer." G. C. Whipple tells us that "eight years later, Governor Banks, who had been a member of the Sanitary Commission, did not even remember that he had signed the report."

So, in a world in which only Edwin Chadwick in England had any dim conception of an organized, continuing program of positive health promotion, Lemuel Shattuck formulated his vision of the future. I like to think of this ex-school-teacher, publisher, book seller, member of the State Legislature, and good citizen—with his strong and eager face (rising over a high collar and black bow-tie in his portrait), sitting at his desk and beginning to write (probably with a quill pen and on foolscap paper) as follows:

"The Commissioners, appointed on the third day of July last, 'to prepare and report to the next General Court, a plan for a Sanitary Survey of the State, embracing a statement of such facts and suggestions as they may think proper to illustrate the subject,' have considered the matters referred to them, as far as the limited time at their command, and other circumstances, since their appointment would permit, and submit their *Report*."

Little did he think that a century later, an American Public Health Association, of eleven thousand members, would hold a special meeting to attest the lasting significance of what he wrote, a bold pioneer gazing out from a mountain top through the mists to a future promised land.

He states the problem in terms which are as valid in 1948 as in 1849.

"We believe that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable;—that the average length of human life may be very much extended, and its physical power greatly augmented; that in every year, within this Commonwealth, thousands of lives are lost which might have been saved; that tens of thousands of cases of sickness occur, which might have been prevented;—that a vast amount of unnecessarily impaired health, and physical debility exists among those not actually confined by sickness;—that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities pecuniary, social, physical, mental, and moral, which might be avoided;—that means exist, within reach, for their mitigation or removal;—and that measures for prevention will effect infinitely more than remedies for the cure of disease."

He perceived that "the condition of perfect *public health* requires such laws and regulations as will secure to man associated in society, the same sanitary

enjoyments that he would have as an isolated individual; and as will protect him from injury from any influences connected with his locality, his dwelling-house, his occupation, or those of his associates or neighbors, or from any other social causes." Still more remarkable is the fact that Shattuck realized the importance of the educational, as well as the legal approach. "But whom does this great matter of public health concern?" he asks. "By whom is this subject to be surveyed, analyzed, and practically applied? And who are to be benefited by this application? Some will answer, the physician, certainly. True, but only in a degree; not mainly. It will assist him to learn the causes of disease; but it will be infinitely more valuable to the whole people, to teach them how to prevent disease, and to live without being sick."

The *Report* begins with an admirable historical summary, the preparation of which must have taken weeks and weeks of Shattuck's time and more than exhausted the $50 allotted to the Commission for the purchase of books on the subject. It traces the progress of the "Sanitary Movement" abroad — in France, Germany, and England, and of the beginnings of the movement in this country. It includes an invaluable review of the outstanding epidemics which had occurred in Massachusetts, from a mysterious pestilence which had almost exterminated certain local Indian tribes in 1618; and closes with statistical analyses of mortality by place, season, occupation, and cause which are still of background significance to the student of vital statistics.

The major section of the *Report* is devoted to specific practical recommendations, fifty in number; and it is here that Shattuck's combination of long-range vision and practical common sense is most astonishingly manifest. Of the fifty recommendations—all at the time new and untried principles or policies—careful analysis shows that no less than thirty-six are now universally accepted practice—not only in Massachusetts but throughout the Union. They provide, first, for a sound basis of public health administration, including an overall state health law; a State Board of Health (whose membership should include two physicians, a counsellor at law, a chemist or natural philosopher, a civil engineer, and two other persons) with a paid secretary; a local board of health in each town with a secretary, required to make an annual written report; and for special sanitary surveys of particular cities, towns, and localities (a foreshadowing of the work of our Committee on Administrative Practice). Recommendations are specific and detailed with regard to vital statistics, including a decennial state census, uniform nomenclature for causes of death and of disease and collection of data with regard to locality, age, race, sex, occupation, housing, and economic status. In the field of environmental sanitation, Shattuck emphasizes the control of nuisances endangering human life or health (including specifically the smoke nuisance); the supervision of the construction of new dwellings, factories, or other buildings, and the mitigation of sanitary evils arising from overcrowded lodging-houses and cellar-dwellings; the sanitation of school houses; and exact observation of "the effect of mill-ponds and other collections or streams of water, and of their rise and fall, upon the health of the neighboring inhabitants"; a sound basis for the study of the epidemiology of malaria. Specific recommendations provide for control of the sale and use of unwholesome, spurious or adulterated articles designed for food, drink, or medicine, with special reference to patent medicines and other nostrums and secret remedies.

In the area of communicable disease

control, every town should be required to provide periodical vaccination against smallpox; and three recommendations deal with maritime quarantine and the protection of the health of passengers and merchant seamen, a program which was soon to be developed by the U. S. Marine Hospital Service. Shattuck's emphasis on tuberculosis is of special interest. He says:

> "The occasional visit of the cholera, or some other epidemic disease, creates alarm, and precautionary measures are adopted for prevention. But where is the alarm and precaution against a more inexorable disease, which, in this state, in every day in every year deprives more than seven human beings of their lives? Over this disease curative skill has little or no power. It generally goes on from its commencement to its termination, uncontrolled and uncontrollable by any remedies as yet discovered. Cholera, typhus, scarlatina, though terrible in themselves, when compared with this disease, are far less so in fatality. *But it may be avoided,* before it attacks. Its onset and its development may be prevented. And if it is ever to be ameliorated or eradicated, it can only be done by prevention, and not by cure."

The precise answers were not then at hand; but Shattuck faced the problem and urged "that the causes of consumption, and the circumstances under which it occur, be made the subject of particular observation and investigation." In other recommendations, the *Report* lays the foundation for programs of child health by the training of "parents, and others to whom the care of those in infancy and childhood are intrusted," to "understand and discharge their duties so that a good foundation may be laid for vigorous manhood and old age"; and by measures taken "to ascertain the amount of sickness suffered among the scholars who attend the public schools, and other seminaries of learning." Finally, two of the most far-sighted recommendations in the *Report* suggest: "that institutions be formed to educate and qualify females to be nurses of the sick"; and "that persons be specially educated in sanitary science, as preventive advisers as well as curative advisers." In considering the first of these suggestions, we must recall that in 1848 Florence Nightingale had not yet established her pioneer training school in England; and that this astounding Boston book seller based his recommendations on his knowledge of Pastor Fliedner's school at Kaiserswerth, from which the Lady of the Lamp drew her own inspiration. With respect to education in preventive medicine, Shattuck foresaw the need for something like our ten accredited Schools of Public Health, and for the attempt—not even yet too successful—to introduce the concept of prevention into medical education.

Against these 36 recommendations whose soundness has been demonstrated by their full incorporation into the routine practices of public health, I find only 4 which experience has shown to be unimportant or, in some degree, unsound. One of these relates to a minor detail with regard to the format of printed annual reports. Another calls for control of inquests by the Board of Health; and still another for the management of cemeteries by the Board of Health. The fourth and last dubious recommendation of the *Report* urges that "whenever practicable, the refuse and sewage of cities and towns be collected, and applied to the purposes of agriculture." This was wholly in accord with the best thought of the time in England; but experience has shown that such a method of disposal is not generally "practicable" on economic grounds.

There remain ten recommendations of the *Report* which are of particular interest to us. They are as sound as the 36 proposals which have been generally accepted; but their importance has not yet been fully realized. They constitute direct and immediate challenges to the public health profession of 1948.

Three of these recommendations (XVII, XXI and XXXVIII) relate to the vital problems of housing and planning. We have accepted the necessity for health department control of the most obvious and glaring defects in housing; but this is merely curative and not preventive sanitation. Shattuck saw farther into the future. He demanded that "in laying out new towns and villages, and in extending those already laid out, ample provision be made for a supply, in purity and abundance, of light, air and water"; "that open spaces be reserved in cities and villages for public walks; that wide streets be laid out; and that both be ornamented with trees." He urged that "tenements for the better accommodation of the poor, be erected in cities and villages." It is true that he looked chiefly to private philanthropy to attain the latter end; but we know today that only public assistance, on the federal level, can possibly meet our national needs. We have city planning boards in our cities; but—with shining exceptions, such as Philadelphia and Los Angeles—they are not receiving full and continuous public support. We began, with brilliant success, under the National Housing Act of 1937, a real program of slum clearance and housing for the lower income groups; but the House of Representatives, through reactionary committees, killed public housing bills in both the 79th and the 80th Congress. Except for temporary war housing, not a single dwelling for low income families has been built for nearly a decade; and with increasing families and inflation, slum conditions become more deplorable every year.

A second challenge of the 1850 *Report* is found in its suggestion (XXX) that local boards of health should make "careful observation of the sanitary evils of intemperance, and the local and personal circumstances under which they occur." We have only begun to realize that alcoholism is not primarily a moral or a social problem but a medical problem; and, in Connecticut, and a few other areas, it is being attacked along that line.

Another of Shattuck's recommendations (XXXII) faces the challenge of mental and emotional disease, probably the greatest single objective of the public health program of the future. His concrete suggestion is a limited and perhaps, in its actual form, an unsound one—that "the authority now vested in justices of the peace, relating to insane and idiotic persons, not arrested or indicted for crime, be transferred to the local Boards of Health." Yet his fundamental assumption that the person of unsound mind presents a health problem rather than a legal problem is wholly valid. All of our dealings with such persons must be guided by psychiatric expert knowledge and not, as is still too often true, by archaic and barbarous commitment laws. In further reform of these laws and in providing preventive services which will avoid the necessity for resorting to legal procedures at all, the health officer faces a major opportunity.

Two of Shattuck's recommendations embody minor—but significant—suggestions as to the extension of our knowledge of disease prevalence by more careful and detailed records to be kept by private physicians (XLVI) and by systematic records to be kept in each family "of the physical and sanitary condition of its members" (XLVIII).

Finally, three recommendations open up wide vistas in the area of public health education. They suggest that "a sanitary association be formed in every city and town in the state, for the purpose of collecting and diffusing information relating to public and personal health" (XXXVII); that "clergymen of all religious denominations make public health the subject of one or more discourses annually, before their congre-

gations" (XLVII); and that "individuals make frequent sanitary examinations of themselves, and endeavor to promote personal health, and prevent personal disease" (L). The establishment of "sanitary associations" in every city and town is precisely the object of the National Health Council, whose recent reorganization we hail with such keen satisfaction. The clergy could certainly be enlisted more generally in our cause. The "sanitary examination" which Shattuck proposed was not "an annual health examination"; but the much more important continuing study of problems of personal hygiene which is the chief objective of health education.

In general, it will be seen that the 1850 *Report* laid a sound basis for the development of health administration, vital statistics, sanitation, and control of foods and drugs. It opened the way for maternal and child health, school health, and the study of tuberculosis. It—curiously enough—ignored domestic (as opposed to maritime) isolation and quarantine, so far as major recommendations were concerned. It could, naturally, have no vision of the future developments of bacteriology, or immunology (smallpox vaccination being the only specific procedure available). The causative agents of venereal diseases were unknown and effective drugs for their treatment not available. Public health nursing was not to come for a quarter of a century; and medical care was not recognized as a serious problem, although figures are quoted to indicate that the annual charges of physicians of the state averaged $800, with average collections of $600. On the whole, however, it is quite astounding that a report, written when public health practice was in its infancy and public health science yet unborn should, out of 50 recommendations, include 36 which have been universally accepted and 10 more which are now in process of attainment. The general framework of the public health program of 1948 was embodied in the *Report* of 1850.

Time does not permit analysis of the later sections of the *Report* which deal with "Reasons for Approving the Plan Recommended," "Objections Answered," and a "Closing Appeal," to physicians, clergymen, educated men, the wealthy and philanthropic, the people as a whole, the periodical press, the cities and towns and the state, to support the proposed program. Shattuck uses the now familiar—but still highly fruitful—device of comparing the cost of sickness with the cost of health. He estimates the burden of preventable disease in Massachusetts at $7,512,000 a year; and he asks for the very modest sum of $3,000 a year to support his proposed State Board of Health! Many of the anticipated objections to his plan have a familiar ring, today: "It may be said,—'The measure is not applicable to this State; it may be well enough in some other places and countries, but we do not suffer evils which require such remedies for their removal; no people are more healthy than we; we are well enough as we are.'" This is precisely the argument advanced to avoid the issue of health insurance for the groups of modest income in 1948. "It may be said,—'This measure will interfere with private rights. If I own an estate haven't I the right to do with it as I please? to build upon it any kind of house, or to occupy it in any way, without the public interference?'" Here is the basis of the current opposition to sound housing legislation. "It may be said,—'We acknowledge that all you say is reasonable and cannot well be gainsayed; but we are a business-like, a money-making, and money-loving people. We are too much occupied to consider these matters. So many other things take up our attention that we haven't time to examine, much less to carry out your measure; and people are

not up to it as yet.'" Is this not precisely and exactly the attitude of the 80th Congress toward the vital problem of slum clearance and homes for the families of low income in 1948?

This is truly an astounding document. Its final appeal closes with a glowing tribute to the great Commonwealth under whose auspices the *Report* was produced. Shattuck points out the primacy of the leadership of Massachusetts in free public education, in registration of births and deaths, in provision of public facilities for the blind, and the deaf and dumb, in demonstration of the value of smallpox vaccination and of anesthesia. "God save the Commonwealth of Massachusetts" —he quotes—"'There she stands'; a bright morning star in the system of the Union." The publication of the *Report* in 1850 was one of the most effulgent rays ever emitted by that star.

The true significance of this *Report* is not its specific content, although much even of that is still pertinent to the present day. Its vital message for 1948 is the spirit of its approach—for the spirit of man is not something ephemeral. It is the determination of Shattuck to further the cause of all of the people, his fiery enthusiasm for that cause, his vision of new challenges and his unwavering faith in ultimate victory —these are the essentials—the living forces of the document. As you read it, you will gain new conviction of the true values of the cause which this convention of the American Public Health Association represents. Our calling is not merely to a useful and respectable profession—but to a crusade. You may remember the old tale of the three workmen, who were asked what they were doing. "I am earning my living," said the first. "I am dressing stone," said the second. "I am building a cathedral" said the third. Shattuck reminds us that we are building a cathedral.

Nor is our task a static routine but an ever-advancing and ever-widening adventure in the cause of man. We can, with great advantage, use standard methods for routine procedures; but our program as a whole must never become standardized. We must open our vision and call upon the resources of our courage to attack those problems which Shattuck foresaw, such as housing, mental hygiene, alcoholism, and health education; and those he did not vision, such as geriatrics and rehabilitation and medical care. We must not be disheartened if progress is slow. The modest state health organization which Shattuck urged for Massachusetts was not attained till nineteen years after the *Report* appeared and ten years after his own death; but it was, at last, established along exactly the lines which he laid down.

We have, today, far stronger arguments than Shattuck had to back our appeals. During the thirty years between 1915 and 1945, the United States took part in the two greatest wars of history. In those wars, between half a million and a million lives of our citizens were lost in battle. During the same thirty years, the reduction in our civilian death rate saved over six million lives.* Even World Wars are trifling and unimportant incidents, by comparison with the triumphs of public health—perhaps the most remarkable social phenomenon in the history of mankind.

This is the great cause which Shattuck served in 1850. It is the cause which you and I serve today. If we pursue our vocation with Shattuck's zeal and courage and vision and faith, the second hundred years of public health may be even harder than the first; but they will certainly be even more glorious.

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* Data courteously provided by I. M. Moriyama of the National Office of Vital Statistics.

The Montefiore Hospital Home Care Program*

MARTIN CHERKASKY, M.D.

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ENUMERATING services which the Montefiore Hospital Home Care Program provides for its patients, and the gratifying results which we have achieved, would be telling only part of the story. The basis of the program, which carries a step further the philosophy which Dr. Bluestone, our Director at Montefiore Hospital, has been expounding for some three decades, may be of even greater significance. When I was in medical school, not so long ago, we were taught that it was important to think of a patient as a whole, and not just to examine a limb or an eye. We have now come to a point in the practice of medicine where we must broaden that point of view. When we think about a patient, we should think about him not only as an organic and spiritual whole, but also as a whole in society. It is no more fair or useful to separate a man from his environment than it is to divide him into separate and independent parts.

Our hospitals, despite their stress on scientific medicine which includes diagnostic machines, laboratory examinations, therapeutic procedures, and all of the other wonderful accomplishments which have raised the level of medical care, have held back from an understanding of sick human beings as social human beings. When a patient presents himself to a hospital with certain symptoms these days, he comes in as a stranger, his immediate illness is diagnosed, and he is relieved of his condition. Unfortunately, however, he too often returns to the same situation which may have given rise to his illness. To understand what caused this patient to become sick, it is necessary to know what sort of family he has, where he lives, what kind of clothes he wears, what food he eats, what kind of employment he has, and how he reacts to these factors. These and similar facts of life make up man as a social being, and may be more provocative in the origin of his disease than the germ which has been isolated from his sputum in the bacteriology laboratory. The hospital must seek a knowledge of these factors as eagerly as it seeks knowledge in the field of scientific medicine.

This introduction is, I believe, vital to an understanding of "Home Care." Our hospital, in extending its services into the home on an extramural basis, has begun to learn many things about the patient which can only be learned when he is in the bosom of his family. To the doctors on the program it has brought a new realization of the importance of social factors in disease. This is true of any disease. It is particularly true of long-term disease where the stress of illness brings about many changes in the relationship of the patient to his family, both emotionally and economically. Montefiore Hospital in New York has not only made its scientific machinery available to pa-

* Presented before a Joint Session of the Public Health Nursing and Medical Care Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

tients who live miles from its walls, it has also begun to learn new reasons why a patient becomes sick and why his illness is prolonged. This may indeed prove to be the most important contribution of the Home Care Program.

For the years 1947–1948, our Home Care Program has received $80,000 from the New York Cancer Committee, and $14,000 from the Greater New York Fund on an extra budgetary basis.

To illustrate the thinking which goes into the selection of a home care patient and what is done for him, it might be well to have you follow a typical case.

John J. was admitted to the hospital with some undetermined abdominal disease, and after thorough investigation by the clinicians and by the laboratories of the hospital, it was found that he had a cancer of the colon. He was subjected to major surgery, at which time it was found that the disease had progressed so far that the entire cancer could not be removed and he was left with a colostomy. Here is a patient who will ultimately die of his disease, but he may have six months, a year, two years or more to live. He requires nursing care, colostomy irrigations, watchful attention for complications, medication, and someone to help him with his food. He may be semi-ambulatory or bedridden. In any case, he is a sick man. But he may no longer require the special facilities of the hospital. Indeed, even if there were plenty of room for him in the hospital, he might do much better in some other environment.

The Department of Home Care was notified about this patient, and our doctor saw him for the purpose of determining whether we could provide him with a level of medical care at home which would be in conformity with our best hospital standards. In addition to being medically eligible, the patient was investigated and determined to be socially eligible. Every patient who is admitted to Montefiore Hospital has a social service "work up." When he is evaluated for Home Care, the social service worker reviews the patient's record, interviews him, interviews members of his family, and investigates the home. Since no patient is returned to his home unless this is in his best interests, it is obviously important that the family situation, the physical facilities of the home, and the patient's relationship with other members of his family should be such as to encourage the return to his home.

Many of us think of families and just naturally assume (at least when we are younger) that all parents love their children and that all children love their parents. Most of us live long enough to find out that this is not necessarily so. When return of a patient to his home is contemplated, it is important to know what bonds exist between him and his family—Are they still strong, after the disrupting effects of a long illness? These questions must be answered before it can be decided that it is best for a patient to return to his home. Some families seem not to want the patient back, but closer investigation reveals that the reason is not lack of love, but fear—fear of illness, fear of impending disaster, fear of inability to do what is required. If the fundamental attitudes are sound, all of these fears can be overcome by careful handling and good service. Some of the families who were doubtful proved to be among the best in our experience.

When it has been decided that a patient is medically and socially eligible, the patient goes on Home Care and receives the following services:

1. Medical service, around the clock, seven days a week. Specialists are available for the patient in his home, such as orthopedists, ophthalmologists, and surgeons. Many medical procedures such as abdominal taps and blood transfusions can readily be done in the home.

2. Social Service—The social worker who cared for the patient on the ward follows him into the home to help him and his family with any problems that may arise, and interprets the program to the family.

3. Nursing—The Visiting Nurse Service of New York, by contracts with us, visits each patient at least once, even in those cases where we do not foresee any need for Visiting Nurse Service, since their experience in the home will give us a good evaluation of the patient and of the patient's need for nursing. In addition, the nurses have two other important functions. They provide nursing and they teach. The teaching is, in some respects, the most important part of their job. They often teach a member of the family to become an expert nurse in the care of a particular patient.

4. Housekeeping service—We provide housekeeping service 5 to 10 hours per week. We find that this is very helpful since many of the patients who would otherwise have to remain in the hospital can well be taken care of at home if there is someone to help with the heavy housework. We have discovered that a woman is more than just a housekeeper in the home—that the mother, when she returns to the home, even though she no longer is able to do the dishes and wash the floors, can still be the rallying point for the entire family.

5. Transportation—Transportation to and from the hospital is provided, and there is a free interchange of patients between the hospital and the home. Dr. Bluestone pointed out [1] that Home Care is, in essence, an extension of the hospital into the home. There are none of the facilities of the hospital to which we cannot bring our patients by ambulance. The inconvenience to the patient is little greater than moving him from the 4th floor of the hospital to one of its laboratories.

6. Medication—We supply the patient with all medications, with hospital beds, wheelchairs, special mattresses, braces—anything that contributes to the welfare of the patient and which can be transported.

7. Occupational Therapy—We have a full-time occupational therapist who visits the patient in his home. This serves several purposes. First, it is a morale builder and certain corrective procedures can be taught to the patient. Second, for some patients it may in a small way alleviate the ever present financial difficulties.

8. Physical therapy — Our physical therapist also enters the home to treat the patient.

What are the results of our program? Let us consider the financial benefits first even though they may not be the most important. In the first twenty months of our program, we have provided something over 23,000 days of patient care. The average cost per patient day was less than $3 per day which compares quite favorably with the present cost of hospital care of $12 to $15 per day. It is, however, not of importance to have a product which is only cheaper. It must be as good or better. Home Care for patients who are suitable is not only "as good as" hospital care—it is infinitely better. If there were many empty hospital beds, a patient who is suitable for Home Care would still do much better in his home than he could possibly do in a hospital. In a hospital, a patient is one of many. He has to give up many of his own little private privileges and desires for the benefit of the group as a whole. In Home Care, we have provided the best of scientific medicine and the best in environment. He is an individual in his own bed with his own type of bedclothes, and he can have the window up or down as he sees fit. He can have his breakfast when he wants it and not when the dictates of hospital discipline compel. A patient on the ward in a hospital may be looked

at every day by a doctor, but he is not always "seen." When a doctor visits a patient in his home two, three, or four times a week, he is the sole recipient of the doctor's attention and care. A doctor on the ward may find greater interest in some patient three beds down the ward who is clinically more exciting or more interesting. Where the special facilities of the hospital are no longer needed, the rigidity and chilliness of a hospital can be profitably exchanged for the flexibility and warmth of the home.

Let me cite a case which illustrates the individualization of medical care and the well organized team which can be brought to bear on the patient in the home:

Jean J. had a growth involving her spine. An operation was performed and a large bony segment was removed. This happened about six years ago. During the intervening time Jean spent more than one year in a body cast and, because of the defect in her spine, was told she could never walk. She was seen in some of the best hospitals, but here was a patient permanently consigned to bed, a hard fate for a 29 year old girl to endure.

Eight months ago Jean came on the Home Care Program. She lived in a third story apartment with her widowed mother. The doctor seeing this young woman in her home, developed a much clearer insight into her hopes and desires than could a doctor on the ward where she was just one of a dozen patients bedridden for life. An orthopedist was called in, and after reviewing all the x-ray films, a special back brace was made for the patient. One day the visiting nurse met the doctor at Jean's home and helped her out of bed with under-the-arm crutches, and so began a long period with the doctor visiting three times a week, the visiting nurse three or four times a week, the physical therapist four times a week, massage, encouragement, new Swiss crutches, leg brace, and one day Jean got out of bed and walked to the bathroom for the first time in over five years. By using telephone books as an improvised stair, she was taught to walk up and down stairs. More than six months after coming on Home Care, Jean walked down two flights of stairs, got into a cab, came to our hospital and was presented to our clinical conference. Many of the doctors were surprised to see this "bedridden" patient come in under her own steam. Jean now is progressing toward walking without any supports.

We have salvaged a human being, and this by individualizing her care and by coördinating all the facilities of the hospital and community in their joint fight for health and against disease.

REFERENCE

1. See Home Care, An Extramural Hospital Function, *Survey Midmonthly*, Apr., 1948.

Home Nursing Service in the Health Insurance Plan of Greater New York*

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VISITING nurse service at home is included in the list of benefits provided by the Health Insurance Plan of Greater New York. A review of the first year's experience tells a limited, but significant story.

As is now widely known, HIP (Health Insurance Plan of Greater New York) is a non-profit corporation, licensed by the State of New York, operating under New York State Insurance Department regulations. It provides specified benefits for employed persons in New York City who earn less than $5,000 annually, and to their dependents. Pamphlets describing the plan,† state "no limitations on age or amount of service." The medical care includes general medical service at the home, at the doctor's office, at the hospital; specialist, surgical, maternity, and laboratory services; health examinations and preventive services.

The cost, which is shared by the employee and employer, the latter paying at least half of the premium, is $0.56 a week for a single individual, $1.12 a week for a person with one dependent, and $1.68 a week for a person with two or more dependents. Hospital insurance is not included in these costs, but each subscriber must be enrolled in a hospitalization plan as a prerequisite for HIP enrollment.

Group practice and a capitation plan is offered to qualified physicians. A group includes general physicians and specialists, aided by technical personnel working together as a team from an administrative center. Each medical group must meet professional standards set by the 15 practising physicians constituting the HIP Medical Control Board. A capitation of $19.20 per person per year is paid by HIP to each medical group. Considerable thought and study preceded this decision. Apprehension on the part of some persons about the physicians being willing to pay for nursing service and concern by others that if they did not pay for it, the nurses might be asked to make too frequent calls to assist physicians, influenced HIP to put aside 40 cents (80 per cent) per person to cover the cost of the estimated visiting nurse service and to ask each medical group to bear visiting nurse service costs up to 10 cents (20 per cent) per insured person per year. Experience, in the first year, shows that the limited amount of nursing service used was used wisely. No physician asked the nurse to carry out services which he might be expected to give. However, some of the medical groups (not all) voiced disapproval in having any part of their capitation

* Presented at a Joint Session of the Public Health Nursing and the Medical Care Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

† Can be secured from Office of Health Insurance Plan of Greater New York, 425 Avenue of the Americas, New York 11, N. Y.

money used for nursing service, and wished unused funds to revert to the medical group.

Each medical group is an independent administrative unit which may employ non-medical personnel without HIP approval, and visiting nurse service is one of the benefits which the group agrees to provide. The Health Insurance Plan Nursing Advisory Committee, composed of representatives from both official and private agencies including hospitals, public health, and schools of nursing, recommended that medical groups should not try to set up their own visiting nurse services, and when HIP went into operation in March, 1947, it signed contracts with the three visiting nurse organizations covering the five boroughs of New York City.

Before citing details of these contracts, it is appropriate to mention that, in HIP policies, emphasis is given to the insured persons' free choice of physicians from the medical group and importance is attached to preserving the desirable close doctor-patient relationship essential to effective medical care. For the visiting nurse organizations, the HIP contract did not in any way change their ideas and principles of working with private physicians as they have always worked with the doctors in the community. Nor does a contract with any group change the ideals and principles of the visiting nurse organizations concerning nurse-patient relationship.

THE CONTRACT

It is desirable to have the formal written contract as simple as possible, and provide for changes as needed in a separate statement of procedures. In the HIP contract it is agreed that "the nursing agency will provide visiting nurse service to HIP insured persons subject to the 'Policies and Regulations for Visiting Nurse Service Furnished to HIP Insured Persons' or any subsequent revision of these policies." Thus, the policies and regulations became part of the contract without encumbering it. In addition, the contract states that:

1. The insured person must be under the care of a physician affiliated with a HIP medical group.
2. Nursing visits will be made in the home, within the geographical area served by the nursing agency, and in accordance with nursing agency policies.
3. All nursing visits must be reported to and bills submitted to HIP at the end of each month for nursing services rendered in that month.
4. HIP will pay the nursing agency on a cost per visit basis, according to an annual cost-accounting method recommended by N.O.P.H.N. and used extensively throughout this country.

Complete information was not available on which to base an accurate estimate of the volume of nursing service which might be needed or requested, although experiences of insurance companies and visiting nurse organizations were carefully reviewed. The estimate made was knowingly and deliberately set about 50 per cent higher than any other estimates in order to insure adequate funds to provide for an unusual amount of service. This estimate was set at a *ceiling* of 300 nursing visits per 1,000 insured persons per year.

The *Policies and Regulations* for nursing service allowed for flexibility, and included most of the generally accepted policies in visiting nurse organizations such as a list of services provided (sent to all physicians participating in medical groups), hours for receiving calls, methods of obtaining a physician's orders and keeping him informed of the patient's progress, and methods of certifying the eligibility of a patient to receive service as a HIP insured person. Great effort was made to keep the record system as simple as possible; but as visiting nurse organizations know from long experience, the need to report services rendered to many different groups such as welfare departments, insurance companies, industries,

private physicians, and many other groups presents a definite problem. A new contract, such as the one with HIP, will inevitably present an additional need for close supervision of records and the learning of another set of regulations regarding many record items. This is a fact, not a complaint.

One policy of particular interest was that the nursing agency could accept a request for an initial home visit from *any* source. Needless to say, nursing service could not be continued without medical supervision of the patient, and effort is always made to secure medical orders before the first visit. But the fact that the insured person can request nursing service is very important and, in the first seven months' experience, the first request came from the family for 24 per cent of those who received nursing service.

Time does not permit further discussion of the many details of the plan, if I am to tell more of the story of our actual experience the first year. (A request to HIP, to Dr. Dean Clark, Medical Director, or to Miss Clara Richmond, who is the nursing consultant on the Medical Division Staff, will provide copies of all available material and answers to specific questions about the nursing service.)

As previously mentioned, the capitation rate was based on expected usage of services, with the understanding that this rate would be under constant scrutiny and subject to revision when sufficient experience was accumulated. It was estimated that a staff of 25 physicians in a medical group would be sufficient to provide an average of 7 physicians' services per person per year. According to the first year's experience, this estimate was high, but again it was considered advisable to plan for a maximum amount of service to allay all fears concerning the costs of this comprehensive program. What volume of requests for medical care would come from subscribers was an unknown factor.

I am indebted to the HIP Division of Research and Statistics for the following figures:

During its first year of operation, HIP had an enrollment which advanced from 2,643 on March 1, 1947, to 109,561 on February 29, 1948. Coverage was provided for a total of 701,299 months for subscribers and their dependents. These enrollee months are the equivalent of 58,442 enrollee years. For these insured persons, a total of 233,293 physician services were rendered. These services do not include radiologists' and pathologists' services nor any rendered by auxiliary personnel (office nurses, technicians, physiotherapists, etc.).

The physician services come to 4 per enrollee year. The nursing visits totalled 1,836 or 0.03 visit per enrollee year, (one nurse visit to about 127 physician services).

Of the 233,293 physician services, 30,511 were home visits of physicians. The nursing visits came to one per 16.6 physicians' home visits.

In the case of Medical Group "X", which is one of the HIP's most substantial medical groups with a high proportion of children in the enrollment and with excellent medical standards, the record shows 7,063 enrollee years and 189 nursing visits. This is a little less than 0.03 nursing visit per enrollee year. The physician services, as narrowly defined above, furnished by this medical group, came to 33,348 or 4.7 per enrollee year. There was one nurse visit per 176 physician services and one per 27 physician home calls.

A comparison with the original estimate for home nursing service, which you remember was deliberately set at a ceiling, shows that the nursing service given was only 1/10 of the amount estimated.

With the efforts made to send com-

plete information about nursing service available to each physician in the medical groups, and a list of nursing services sent to each subscriber, it was expected that the number of nursing services used would increase considerably as the year progressed, and as enrollment grew. This did not happen.

The kinds or types of home nursing service given to HIP patients compare favorably with the general programs of the visiting nurse associations in New York. Home nursing service for cancer patients, particularly following surgery, service for long-term illness, and giving of injections, especially penicillin, have been the most frequent services requested. Teaching of rehabilitation exercises following fractures have been requested for several patients. Less than the expected amount of maternity service has been requested, and for only two cases has the physician asked the nurse to teach the patient to give himself insulin for diabetes. The nurses taught, with the physicians' approval, several families to give injections to the ill member of the family and they also taught families how to give general nursing care to acutely ill patients who needed care throughout the day and night. The total figures for HIP service seem too small to be significant percentagewise.

There is no reason to believe there was dissatisfaction with the nursing service given, for no complaints were received and a few fan letters can be claimed. But there is reason to believe that some of the medical groups were concerned about the 10 cents of their capitation money which was set aside for nursing service. It is to be expected that this, as well as many other problems, may need to be discussed and changed as indicated. It may be that, for an experimental period, HIP will decide to pay for nursing service separately and not have it included in the medical group capitation. This would seem desirable. A nursing agency might also, for an experimental period, agree to accept a capitation payment, although this would require careful study to satisfy all groups concerned. It may also be advisable to carry out an experiment whereby a highly qualified public health nurse would work with one of the medical groups, preferably at a center connected with a teaching institution. Both the physicians and the insured persons may need a more specific outline of the functions which nurses should perform in the home and careful delineation of the circumstances under which nursing service should be requested by the subscriber. It is also important to establish more definitely the functions which nurses should perform at the medical group centers. Such an experiment would need a review with the doctors on a case by case basis, with knowledge of the needs of the patients and families for services which the nurse could provide.

But the most important point is a willingness to experiment. It will be a long time before we find the answers to all the unknowns unless we do experiment, and the appreciation of this fact by HIP is one of the reasons why it is of the greatest interest to our agency to participate in this health insurance plan. Another reason is the sincerity and high ideals demonstrated by the administrators of HIP and the social implications for the community. In a farsighted and progressive way effort is being made to establish for the workingman a means whereby a high quality of medical care can be provided through a prepayment health insurance plan.

Studies on Survival of Influenza Virus Between Epidemics and Antigenic Variants of the Virus*

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THE studies here reported comprise, first, surveys at approximately monthly intervals during the late fall, winter, and early spring for influenza virus in the throats of apparently healthy persons and of persons with upper respiratory symptoms; and second, a study of the antigenic characteristics of the strains isolated. Mention is also made of a limited experiment on human vaccination.

The surveys for virus were made in a state vocational school for boys. The boys were from 17 to 21 years of age and the number in the school ranged between 750 and 800. While for the most part they slept in individual rooms, they intermingled during meal, work and play hours. Sick call was held each morning and elevation of temperature was the customary criterion for hospitalizing those with respiratory symptoms and was also regarded as an essential feature for the clinical diagnosis of influenza.

Throat washings were secured by gargling 20 ml. of 2 per cent normal horse serum in a phosphate buffered solution. Following the morning sick call, throat washings were taken from those who at the time had acute respiratory symptoms and, in addition, from apparently healthy individuals selected at random, except as otherwise indicated. A total of 50 specimens, more or less, were collected at each visit. The bottles containing the washings were immediately iced, brought to the laboratory, and inoculated the same day.

At the laboratory the washings were pooled in groups of five, penicillin and sulfadiazine added to control bacterial growth, and 0.2 ml. of the pool inoculated into the amniotic sac of each of 6 chick embryos. Washings from persons with acute respiratory symptoms were inoculated separately or placed in the same pool. After incubating the embryos for 4 days at 35° C., the amniotic fluid and either the lung and trachea or sac membrane were harvested and pooled according to group. The sac membrane and lung and trachea were ground and suspended in the amniotic fluid. The suspension thus prepared was inoculated into a second group of normal eggs. The passages were thus continued until at least three passages had been completed. The agglutination of chicken erythrocytes was the test used for detecting virus.

Between November, 1946, and April, 1948, throat washings were collected on 15 occasions. These collections comprised 739 specimens, 716 of which were examined in pools of approximately 5 in each pool, making a total of 141 pools; and 23 specimens derived from persons with respiratory symptoms were individually inoculated.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

Influenza virus was isolated from 4 of the 141 pools; one on February 27, one on April 1, and 2 on May 15, 1947. At the time of the first isolation (February 27) no recognized clinical influenza had occurred in the school since the beginning of the survey. Indeed, the first clinically diagnosed case did not occur until April 1, 32 days later. During the succeeding 3 weeks there were 31 boys who had symptoms usually ascribed to influenza. While the epidemic was active, influenza virus was isolated from pools of throat washings of symptomless persons and from 6 of 9 boys in the acute phase of the disease.

Examination of pools of washings collected 10 and 40 days following cessation of the epidemic failed to reveal the virus. In these latter pools there were purposely included throat washings from a number of boys who had suffered from an attack of influenza during the epidemic and from those comprising the pools in which influenza virus had been previously identified. Nor was virus detected in washings taken in November and December of 1947, and in January, February, and April of 1948. Since the 1947 epidemic, no illnesses have occurred which warranted a clinical diagnosis of influenza.

In brief, influenza virus was found in the throats of apparently normal persons 32 days prior to the onset of the clinically manifest epidemic and while the epidemic was active, but not on previous or subsequent occasions. Moreover, except during the epidemic, there was no detectable association of influenza virus with upper respiratory symptoms.

Two questions arise in connection with these findings: First, were the isolations legitimate, particularly the one made prior to the epidemic? It is felt that this question can be answered in the affirmative, because the egg passages were made in a laboratory wing where no other influenza virus had been introduced and because the strains isolated, as will appear later, were antigenically different from any laboratory strains then in our possession. Second, was the technique employed adequate to identify influenza virus if present in minute amount or if bound by the presence of antibodies? It is obviously impossible to give a categorical answer to this question. It may be said, however, that before undertaking the survey, several methods which had been described for concentrating influenza virus were investigated such as adsorption by charcoal, precipitation by alcohol, high speed centrifugation, adsorption and elution by chicken erythrocytes. Although further concentration of relatively low dilutions of virus suspended in a diluent free from foreign matter can be achieved by these procedures, no significant concentration of high dilutions of the virus in throat washings was consistently obtainable. Thus, efforts to concentrate virus in the pooled throat washings were abandoned. It was found, however, that the addition of concentrated heat-inactivated virus to a neutral serum-virus mixture, as described by McKee,[1] would, even in highly dilute mixtures, release some of the active virus, and this procedure was employed in examination of throat washings taken subsequent to the epidemic when humoral antibodies were more likely to be present.

Isolation of virus from persons with symptoms of influenza—During the epidemic period (March and April) in 1947, throat washings from 17 persons with acute respiratory symptoms were inoculated into embryonated eggs, as above described, and virus was isolated from 12. Six of the positive specimens came from the boys' vocational school, situated 130 miles north of New York City; 1 from a girls' school at Poughkeepsie, N. Y.; and the remaining 5 from New York City and vicinity. So far this year there has been no epidemic

TABLE 1

Cross-Hemagglutination Titrations with Hamster Antisera

		Virus										
Antisera	*Year Isolated*	*1229*	*1234*	*1238*	*1243*	*Pool 52*	*Pool 63*	*1233*	*965*	*PR8*	*Lee*	*Swine*
1229	1947	*512*	256	128	256	128	0	0	0	0	0	0
1234	"	512	*512*	256	512	128	32	0	0	0	0	0
1236	"	128	256	*1024*	512	0	0	0	0	0	0	0
1243	"	256	512	256	*256*	32	32	0	0	0	0	0
Pool 52	"	4096	2048	1024	1024	*1024*	128	0	0	0	0	0
Pool 63	"	1024	1024	1024	2048	64	*256*	0	64	64	0	0
1233	"	0	0	0	0	0	0	*1024*	0	0	0	0
965	1943	0	0	0	0	0	0	0	*256*	512	0	0
PR8	1934	0	0	0	0	0	0	0	0	*512*	0	0
Lee	1940	0	0	0	0	0	0	0	0	0	*512*	0
Swine	1930	0	0	0	0	0	0	0	0	0	0	*512*

NOTE: Initial serum dilution 1 to 32, and "0" signifies that there was no inhibition at this dilution. Four hemagglutinating units were used. All strains with exception of PR8, Lee, and Swine influenza had been isolated and passaged only in egg embryos.

in the boys' vocational school and no influenza virus has been isolated. But a strain was obtained in April of this year from one of two sick children in a family living in the suburbs of New York.

With one exception, all of these strains, as well as those obtained from the pooled throat washings, were readily adapted to growth in the allantoic sac after several amniotic passages. This exceptional strain, designated as 1233, will be referred to later.

The antigenic characteristics of the strains isolated—Immune sera were produced from several species of animals, including ferrets, hamsters, and rabbits. The ferrets and hamsters were immunized by intranasal instillation and the rabbits by intraperitoneal inoculation of allantoic or amniotic fluid of infected chick embryos. In some instances it was necessary to give hamsters a subsequent intraperitoneal inoculation to obtain an adequate immune response.

Hemagglutination inhibition—In performing this test, twofold dilutions of the serum were made and the virus antigen and chicken erythrocytes added in sequence. After standing 1 hour in the icebox, readings were made by the pattern method.[2]

Table 1 shows the result of cross-titrations with hamster immune sera. These titrations were made before the 1948 and other strains included in subsequent titrations were available. It will be noted that with the exception of strain 1233, the 1947 strains form a compact group and are quite different not only from the classical type strains (PR8 and Lee) and Swine influenza virus, but also from a 1943 A type strain (965). The lower titers obtained with Pool 52 and 63 strains may be attributed largely to the avidity factor, since antisera of these strains effectively inhibit all other 1947 strains save 1233. It will also be observed that 965 antiserum inhibits PR8 but that the reverse does not hold. The 1233 strain stands apart and appears to be immunologically unrelated to all of the other strains.

Table 2 reflects the results of titration with immune rabbit sera and includes, in addition to representative strains isolated in this laboratory in 1947, a strain FM1 isolated in 1947 from an influenza suspect at Fort Monmouth, New Jersey (received through the courtesy of Dr. J. E. Smadel), an Australian strain (CAM) isolated in 1946, and a strain (1265) isolated by us

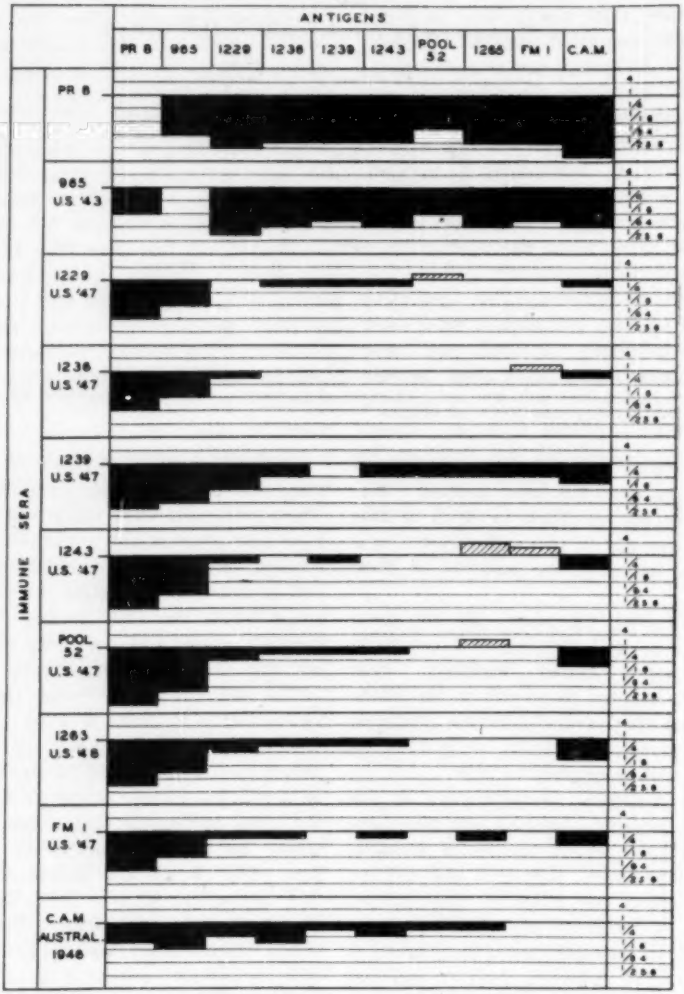

FIGURE 1—A Diagrammatic presentation of results of cross-hemagglutination titration shown in Table 2 after applying an avidity factor and dividing the product into the homologous titer which is assumed to be unity. The black columns below the base line represent the fractions obtained by dividing the heterologous titer into the homologous titer. The cross-hatched columns above the base line are indicative of heterologous titers which were greater than the homologous titer.

TABLE 2

Cross-Hemagglutination Titrations with Rabbit Antisera

		Virus										
Sera	*Year Isolated*	*PR8*	*965*	*1229*	*1236*	*1239*	*1243*	*Pool 52*	*1233*	*1265*	*FM1*	*CAM*
PR8	1934	*8192*	32	64	0	0	0	32	0	0	0	32
965	1943	256	*1024*	64	0	32	0	32	0	0	32	64
1229	1947	0	0	*2048*	128	128	128	256	0	*256*	*256*	*512*
1236	"	0	0	1024	*256*	256	256	128	0	256	512	512
1239	"	32	0	512	256	*1024*	256	128	0	256	256	512
1243	"	0	0	4096	1024	512	*1024*	512	0	4096	2048	1024
Pool 52	"	0	0	4096	1024	1024	1024	*1024*	0	4096	2048	1024
1233	"	0	0	0	0	0	0	0	*2048*	0	0	0
1265	1948	0	0	1024	256	256	256	256	0	*512*	512	256
FM1	1947	0	0	1024	128	256	128	128	0	128	*256*	256
CAM	1946	128	0	512	32	128	64	64	0	128	256	*1024*

NOTE: Initial serum dilution 1 to 32, and "0" signifies that there was no inhibition at this dilution. Eight hemagglutinating units were used. All strains with the exception of PR8 had been isolated and passaged only in egg embryos.

in April, 1948. Again it will be seen that all of the 1947 strains are related with the exception of 1233. They are also closely related to FM1 and the 1948 strain (1265). It is of special interest to observe that the Australian strain (CAM), though differing somewhat, appears to fall into this group. Certainly it is more closely related to the 1947 strains than the 1943 strain.

These differences and relationships become clearer if an avidity factor, as recommended by Hirst,[3] is applied and the product divided into the titer of the homologous serum which is assumed to be unity. The results are illustrated in Figure 1. Strain 1233 is not included in this figure, since there was no cross-immunity whatsoever between this and the other strains tested. Similar results were obtained with the *in ovo* neutralization test.

When, however, the hemagglutination inhibition test was applied to acute and convalescent phase human sera, the relationship of the virus producing the epidemic in 1947 to PR8 became evident. All of 15 persons from whom acute and convalescent phase sera were obtained showed a rise in titer to PR8 following the influenzal attack, although the rise was not so great as to a 1947 epidemic strain.

The broader immune response of adult human beings as compared to animals is probably due to previous conditioning with type A virus infections. Indeed, this may be demonstrated in animals. Ferrets and hamsters infected, first with PR8, and after an interval infected with a 1947 strain, show a further rise in antibodies to PR8 following the second infection.

Complement-fixation — The complement-fixation reaction is generally recognized as being less strain-specific than hemagglutination inhibition and is therefore useful in demonstrating kinships rather than minor differences. Yet, as will be observed from Figure 2, there is a marked difference between PR8 and the 1947 and 1948 strains. The 1943 strain (965) appears to lie between the two.

Human vaccination experiment—At the time the epidemic occurred in the vocational school there were 176 boys who had received 4 months previously a mixed A and B type commercial influenza vaccine and 601 who had not been vaccinated. The attack rate among the vaccinated was actually

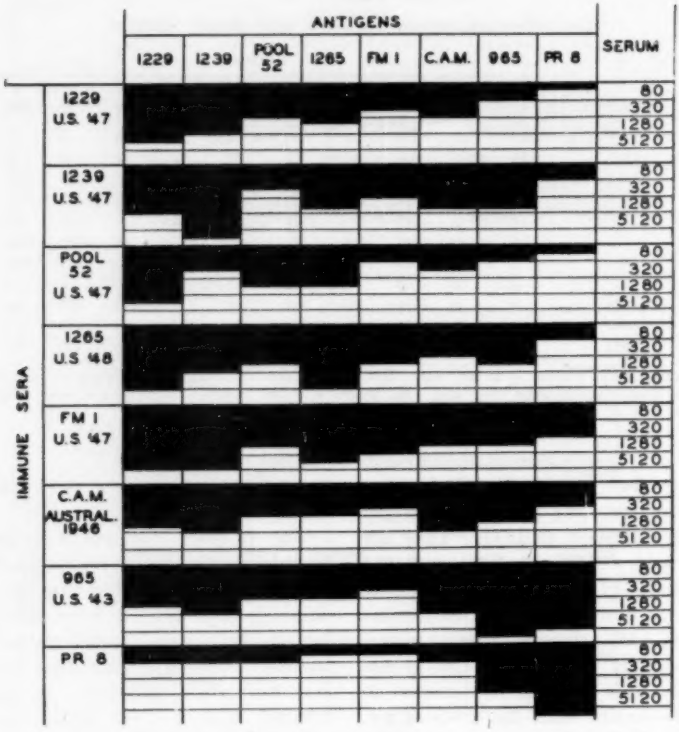

FIGURE 2—A diagrammatic presentation of complement-fixation titration of immune ferret sera. The black columns below the base line indicate the dilution of the serum shown in the column to the right at which fixation of complement occurred.

One and one-half units of guinea pig complement were used in these tests. Whole allantoic fluid, appropriately diluted, was employed as antigen.

higher (6.3 per cent) than among the unvaccinated (3.3 per cent). The difference is not statistically significant, but certainly there is no suggestion that the vaccine afforded protection.

The 1233 aberrant strain—This strain is still under study and a more complete description of it will be published later. Suffice to say here that it was isolated in March, 1947, from the throat washings of a man living in New York City. At the time the throat washings were taken, he had a mild headache and backache and coryza which persisted for only 24 hours. Unfortunately no acute-phase blood was taken, but blood specimens secured 1, 3, 6, and 12 months following the attack showed a progressive fourfold and eightfold drop in the hemagglutination and complement-fixation titers respectively to this strain. There was no significant alteration in titer in these series of sera to either A or B type influenza viruses.

Cross-titration by hemagglutination

and complement-fixation of immune animal sera has shown no immunological relation of strain 1233 to A and B type influenza viruses. Nor has the examination of acute and convalescent human sera from known A and B type influenza shown a rise in antibodies to this strain. With the exception of two of three acute and convalescent phase sera received from Venezuela and obtained from persons who had an upper respiratory illness, we have not so far encountered any other respiratory infection which has produced an immune response to this strain.

Besides its unique antigenic characteristics, it is peculiar in other aspects. It has been exceedingly difficult to adapt to growth in the allantoic sac and to this extent it resembles some of the B type strains. Although it agglutinates chicken erythrocytes, its behavior in this respect is erratic.

Hamsters, ferrets, and monkeys develop antibodies following intranasal inoculation. The strain has been carried through three passages in ferrets by transfer of nasal washings, but repeated attempts to establish it in mice have failed.

It would seem to belong to the influenza group of viruses, since it agglutinates chicken erythrocytes, agrees approximately in size, and like them is pneumotropic, since it produces lung lesions in chick embryos and infects hamsters, ferrets, and monkeys by intranasal inoculation. It is serologically unrelated to mumps and Newcastle disease viruses.

DISCUSSION

The only significant positive finding revealed in the surveys for influenza virus is that the virus may exist in a limited compact population for at least one month before giving rise to definitely recognizable clinical manifestations. That the virus was found in the throats of symptomless persons during the epidemic is not surprising, and offers further evidence of the general dissemination of the virus during such episodes. The failure to discover virus except shortly before and during the epidemic suggests that the circulation if not the sojourn of the virus in this institutional population was of limited duration. This would tend to support the view that the virus is maintained by a chain of silent or manifest infections and is not continuously harbored in a limited and more or less stabilized human population.[4, 5]

The occurrence of virus variants or mutants is not only of genetic interest but also of considerable practical importance. Minor variations in type A influenza strains have long been observed and may in part be attributed to passage in laboratory animals, but the deviation of the 1947 strains, as here noted and previously reported by others,[6-11] is of such magnitude as seriously to complicate the control of the disease by vaccination. Several questions require answering. Among these are: (1) Are the number of variants finite or are they constantly developing and thus perhaps infinite in number and unpredictable in their appearance? (2) What are the factors which influence their development? (3) What deviation from the norm of the A and B types is of public health significance, and what should be the methods and criteria for recognizing such deviation? (4) What feasible steps can be taken to recognize expeditiously the appearance of a new variant?

It seems to us not improbable that variants are constantly developing and that when one which is sufficiently virulent and different from preëxisting strains encounters a relatively susceptible population, widespread infection is likely. In this connection the similarity of the strain isolated in Australia in 1946 to those found in this country in 1947 and 1948 is of interest.

There are probably many factors which influence the development of variants. For example, it has been noted that repeated passage through laboratory animals may produce changes in the antigenic qualities [12] and Dr. A. Saenz and Dr. J. A. Kerr, working in these laboratories, have found that one of our 1947 strains, after a number of passages in embryonated eggs in combination with homologous immune sera, had veered antigenically from the parent strain. It is thus conceivable that the natural passage of influenza virus through human subjects where antibodies are encountered as the result of previous infections may give rise to strain deviation.

We now have at our disposal a number of methods of varying sensitivity for detecting immunological differences among influenza virus strains. But it may be questioned if our experience is as yet sufficient to establish exact criteria for determining the magnitude of the deviation from the type norm that is of practical significance.

The aberrant 1233 strain, though differing markedly from all other influenza strains with which it has been compared, may prove to be of little public health import, as so far it has been linked to only two cases of respiratory infection other than of the person from whom it was isolated.

As to the expeditious recognition of new strain variants, the move to create a World Influenza Center with appropriately situated sub-centers for collecting information and material and for either classifying strains supplied by other laboratories or distributing standardized immune sera and antigens would seem to be a step in the right direction.

SUMMARY

1. A search for influenza virus in an institutional population during the fall, winter, and spring months revealed the presence of virus in the throats of symptomless persons 32 days preceding a clinically manifest epidemic and during the epidemic but not on other occasions.

2. All save one strain isolated from influenza suspects in 1947 and 1948, as well as the strains isolated from the throats of symptomless persons shortly preceding and during the epidemic of 1947, are antigenically similar. They are also antigenically related to a strain (CAM) isolated in Australia in February, 1946. While they may be regarded as belonging to type A influenza virus, they differ markedly from PR8 and an A type virus isolated in 1943.

3. There was no significant difference in the influenza attack rate among persons vaccinated with a commercial A and B type influenza vaccine 4 months preceding an institutional epidemic in 1947 than among those who were not vaccinated.

4. Reference is made to a respiratory virus strain isolated in 1947 which appears to be antigenically unique.

REFERENCES

1. McKee, A. P., and Hale, W. M. Reactivation of Overneutralized Mixtures of Influenza Virus and Antibody. *J. Immunol.*, 54:233, 1946.

2. Salk, J. E. A Simplified Procedure for Titrating Hemagglutinating Capacity of Influenza Virus and the Corresponding Antibody. *J. Immunol.*, 49:87, 1944.

3. Hirst, G. K. Studies on the Antigenic Differences among Strains of Influenza A by Means of Red Cell Agglutination. *J. Exper. Med.*, 78:407, 1943.

4. Endemic Influenza. The Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina. *Am. J. Hyg.*, 47:290, 1948.

5. Influenza B. Study of a Localized Outbreak Preceding the 1945 Epidemic. The Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina. *Am. J. Hyg.*, 47:297, 1948.

6. Francis, T., Jr., Salk, J. E., and Quilligan, J. J., Jr. Experience with Vaccination against Influenza in the Spring of 1947. A Preliminary Report. *A.J.P.H.*, 37:1013, 1947.

7. Rasmussen, A. F., Stokes, J. C., and Smadel, J. E. The Army Experience with Influenza 1946–47. *Am. J. Hyg.*, 47:142, 1948.

8. Sigel, M. M., Shaffer, F. W., and Henle, W. Epidemic of Influenza A among a Recently Vaccinated Population: Isolation of a New Strain of Influenza A Virus. *J. Bact.* (Abstract), 54:277, 1947.

9. Sigel, M. M., Shaffer, F. W., Kirber, M. W., Light, A. B., and Henle W. Influenza A in a Vaccinated Population. *J.A.M.A.*, 136:437, 1948.

10. Loosli, C. G., Shoenberger, J., and Burnett, G. Results of Vaccination against Influenza during the Epidemic of 1947. *J. Lab. & Clin. Med.*, 33:789, 1948.

11. Weller, T. H., Cheever, F. S., and Enders, J. F. Immunologic Reactions following the Intradermal Inoculation of Influenza A and B Vaccine. *Proc. Soc. Exper. Biol. & Med.*, 67:96, 1948.

12. Hirst, G. K. Studies on the Mechanism of Adaptation of Influenza Virus to Mice. *J. Exper. Med.*, 86:357, 1947.

Comparison of Pertussis Cultures by Mouse Protection and Virulence Tests*

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THE successful use of intracerebral infection in mouse protection tests of pertussis vaccine [1, 2] has called attention to a new method for measuring the virulence and protective properties of single cultures of *Hemophilus pertussis*. The practical value of such a study is apparent in relation to the criteria for selection of cultures for vaccine preparation. In the present study, the object has been to rank a group of cultures according to virulence and according to mouse protective properties, and to determine whether any correlation could be found between the two characteristics.

CULTURES FOR STUDY

A group of 76 cultures of *H. pertussis* (70 smooth and 6 rough) were tested for virulence; 41 of these (36 smooth and 5 rough), also for mouse protection. In addition to pertussis cultures, 33 parapertussis cultures were tested for virulence, 2 of them for protection against *H. pertussis;* and 4 bronchiseptica strains were tested for virulence, one for mouse protective properties.

Source and maintenance of cultures

Of the 70 smooth pertussis strains, 55 were isolated in Grand Rapids from routine diagnostic cultures; 10 were received from England, 2 from Mexico, 1 from Australia, and 2 from New York. The 6 rough cultures were old stock strains received from other laboratories where they had been carried for years on various laboratory media, some of them with isolation dates as early as 1916. The 33 parapertussis cultures included 19 isolated by our own laboratory, and 14 were from England, Mexico, and various places in the United States. Three of the *Br. bronchiseptica* cultures were from rabbits and one from a child.

Since 1939, cultures have been dried from the frozen state, the newly isolated ones within 6 transfers from the original plate. Two smooth strains of the study group, S5 and S160, with isolation dates in 1932 and 1933, respectively, were transferred on Bordet-Gengou medium at monthly intervals until 1939, when they were lyophilized.

For study, the cultures were revived from the dried state on Bordet-Gengou medium, and used within six subcultures. Division into rough and smooth strains was made on the basis of growth characteristics, colony appearance, production of hemolytic zone, and morphology of the organisms in stained preparation. According to these generally accepted criteria the cultures included for study were classified as either smooth or rough; intermediate strains were not available.

The cultures were tested for agglu-

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

Sponsored by the Subcommittee on the Evaluation of Administrative Practices of the A.P.H.A. with the aid of funds granted by laboratories in the Biologic Section of the American Drug Manufacturers Association.

tinability using the rapid technique described in *Diagnostic Procedures and Reagents*,[3] and a single antiserum prepared against culture 18-323, the strain used for infection in the mouse protection tests. The aggultination tests were used to check the identity of the cultures and were not intended as a detailed serological study. As was expected, the rough strains were not agglutinated. However, an unexpected variation in agglutinability was observed among the 64 smooth cultures. Although it has been rather generally accepted that smooth cultures of *H. pertussis* form a serologically homogeneous group, it was found that only about half of the cultures tested had titers in the range of the homologous strain which varied around 1:10,000. Eighteen were agglutinated in the range 1:2,000 to 1:5,000; and 11 to low titer only, that is, 1:200 to 1:1,500. These findings suggest the need for further serologic study.

TESTS FOR VIRULENCE

The virulence of pertussis cultures probably has been tested most frequently on the basis of intraperitoneal injections of mice with mucin suspensions. The large killing dose (1 to 3 billion) and the lack of an incubation period, limit such a test to relatively rough determinations. The comparatively small doses of virulent cultures required to kill mice infected by the intracerebral route, and the fact that the incubation period between injection and the first symptoms suggested a true infection, offered promise for a more sensitive virulence test.

Virulence test procedure

Fifteen white mice in the approximate weight range of 16–20 gm., are used for each culture, five mice for each of three graded doses 10^3, 10^5, and 10^7. The culture is grown for 24 to 30 hours on Bordet-Gengou medium plus peptone and the growth harvested into 1 per cent casamino acid. The suspension is adjusted to 5 bil. organisms per ml. by photometric methods and the necessary dilutions made in 1 per cent casamino acid to make the required dose in a volume of 0.03 ml. The mice are injected intracerebrally under anesthesia within 2½ hours after the culture has been harvested.

The endpoint is defined as the least dose that kills the majority of a group of mice within 14 days. Deaths during the first 48 hours are considered as due to injury, and if any such occur in a group of 5 mice, that group is considered unsatisfactory for establishment of the endpoint. It may be mentioned that the limits of the testing range were suggested by many preliminary tests. Smooth strains appeared to be included in the range ending with 10^7. Observations in a higher range were limited by the number of organisms that could be injected into a mouse's brain as an infective dose, without causing early death with toxic symptoms.

To obtain a more precise measurement of the virulence, a test is performed with larger groups of mice, in the range indicated by the first test. For example, if the endpoint with a particular culture is 10^3, a further test with 30 mice divided into 3 groups and injected with doses 80, 400, and 2,000 respectively, will usually establish the LD/50 of the culture.

Results of virulence tests

The results of intracerebral virulence tests with 70 smooth and 5 rough strains of *H. pertussis*, 33 parapertussis and 4 *Br. bronchiseptica* cultures are summarized in Table 1.

The cultures fell roughly into two groups with respect to their virulence. Of the 70 cultures classified as smooth, 55 or approximately 80 per cent, were less virulent and required the larger doses of 10^4 to 10^7; 15 or approximately

TABLE 1

Results of Virulence Tests: Summary

	No. of Strains with Endpoints * as Indicated			
	10^3 or Less	10^4 to 10^7	No Virulence at 10^7	Totals
H. Pertussis				
Smooth	15	55	0	70
Rough	0	0	5	5
Parapertussis	0	2	31	33
Br. bronchiseptica	3	1	0	4
				112

* Endpoint is defined as the least dose that kills the majority of a group of mice.

20 per cent required a dose of only 1,000 or fewer organisms to kill the majority of a group of mice. In tests for the LD/50 of these 15 cultures, their endpoints were found to range from approximately 100 to 1,000.

Of the 33 parapertussis cultures tested, 31 were not virulent in the range including 10^7, and 2 had an endpoint of 10^7. Four cultures of *Br. bronchiseptica* were tested and all were virulent, 3 of them in the smaller doses.

MOUSE PROTECTION TESTS

Procedure

The procedure for a mouse protection test, using the intracerebral route for challenge, has been described previously.[1] Briefly, for each antigen tested, 44 white swiss mice, 13–16 gm., sexes equally divided, were given a single injection intraperitoneally. Four groups of 11 mice each received graded doses, such as 0.06, 0.3, 1.0 and 1.5 bil., respectively, and after a rest period of 10 days they were injected intracerebrally with a challenge dose of approximately 50,000 organisms as determined photometrically. This dose was in the approximate range of 100 to 200 times the LD/50 dose of the challenge culture 18-323. In each experiment there was included a similar group of mice injected with graded doses of a reference antigen and also an unimmunized group of mice for checking the LD/50 and test dose of the challenge culture. At the time of injection of the mice, cultures on Bordet-Gengou medium were made for colony counts as a check on viability. After a 14 day observation period, the results of the test were summarized in terms of dead and surviving mice, and analyzed by the method of Litchfield and Fertig[4] using the table published by Weiss.[5]

All tests of antigens prepared from individual cultures were included in the data with the exception of those which for some particular reasons were unsatisfactory. An individual test was excluded from analysis if the response to immunization was not in proportion to the graded dosage; or if it was not possible to fit a line to the plotted points with reasonable accuracy. All tests in a particular experiment were excluded if the reference antigen and two or more test antigens had exceptionally high endpoints or poorly graded responses. Also, in tests with only three graded doses in which the smallest dose protected none and the largest dose protected all of the mice, no endpoint could be established even though there was evidence of protection, and the antigen was retested with a different dosage schedule.

In addition to the 36 tests tabulated for the vaccines prepared from the smooth cultures, 5 tests were not analyzed for one or another of the reasons stated. Also, antigens from 2 other cultures were omitted from analysis because none of their tests was satisfactory for analysis.

Protection tests with smooth strains of H. pertussis

Based on the results of single tests, always in experiments which included a reference antigen and other test antigens, the ED/50's of the vaccines prepared from the 36 single cultures were as listed in Table 2.

TABLE 2

ED/50's in Mouse Protection Tests with Vaccines Prepared from 36 Smooth Strains of H. Pertussis

0.05	0.15	0.25	0.33
<0.06	0.16	0.26	0.43
<0.06	0.17	0.26	0.43
0.06	0.18	0.29	0.46
0.06	0.19	0.30	0.48
0.07	0.20	0.30	0.51
0.12	0.20	0.30	0.52
0.14	0.22	0.30	0.61
0.15	0.23	0.33	>1.50

Median = 0.24

1st Quartile = 0.15 3rd Quartile = 0.33

Variations in protective properties were observed among the 36 cultures, as was expected. The whole range of results is from 0.05 to 1.5 billion, the median is 0.24 billion and the middle 50 per cent between 0.15 and 0.33. In order to judge the significance of observed differences in protective properties it is necessary to know what variations may be expected to occur from test to test. Light is thrown on this question by the results of 45 different tests of vaccines prepared from culture 10-536 (the reference antigen used for the previously published comparative tests[1] and for 18 of the tests of the 36 single culture vaccines in this study).

In the ED/50's listed in Table 3 the median is 0.23 billion and the middle range is 0.16 to 0.38. Each of the 36 single culture antigens in Table 2 might be expected to show a similar distribution about its respective endpoint.

Because of the distribution of ED/50 values of the 36 smooth cultures in relation to the median of the tests with the single culture 10-536, it is probable that most of the cultures are not very different in protective properties from 10-536. However, those with the lowest ED/50's suggesting better protective properties form a group for further study in repeated tests in the search for superior cultures for vaccine production. Already repeated tests have been done on some of these cultures.

Protection tests with rough pertussis strains and with related cultures

Mouse protection tests with antigens prepared from 5 rough cultures of *H. pertussis* demonstrated no protection. Vaccines prepared from two parapertussis cultures also provided no protection against *H. pertussis* infection. One bronchiseptica culture vaccine appeared to provide slight protection against pertussis infection. Further cross-protection tests are planned.

Correlation of endpoints of virulence and protection tests

If the 36 cultures of smooth *H. pertussis* with their protective endpoints are classified according to the results of their virulence tests, it is found that 11 were in the virulence group with LD/50 values of 10^8 or less, and 25 in the virulence group with endpoints of 10^4 to 10^7. Four of the 11 more virulent and 14 of the 25 less virulent strains had protective ED/50 values about the same as or lower than the

TABLE 3

ED/50's in 45 Mouse Protection Tests with Vaccines Prepared from Culture 10-536

0.05	0.16	0.23	0.39
0.06	0.16	0.24	0.42
0.07	0.18	0.27	0.48
0.11	0.19	0.28	0.48
0.12	0.19	0.28	0.52
0.13	0.20	0.32	0.57
0.13	0.20	0.32	0.76
0.13	0.21	0.35	0.83
0.13	0.22	0.35	0.96
0.15	0.22	0.36	1.00
0.15	0.23	0.38	1.10

0.23 (Median)

1st Quartile 0.155 3rd Quartile 0.385

median value (0.24 billion) for the 36 cultures; that is, the values were in the direction of better protection.

It is evident that there is a lack of association between relative degrees of virulence and protective properties of the 36 smooth strains in which the killing dose ranged from 10^2 to 10^7. In contrast, the 5 rough cultures of *H. pertussis* were found to be without either virulence or protective properties.

DISCUSSION

The results of the comparative tests in this study can scarcely be considered without raising the question of their bearing on the selection of strains for the preparation of pertussis vaccine. Until a practical mouse protection test became available, the only criteria that could be used were identity tests for smooth strains, and some rough test for laboratory animal killing properties. The use of strains rather recently isolated, or kept in the dried state since isolation, has been a precaution in line with the effort to use smooth antigenic cultures. Also several strains instead of one have been used to allow for possible unknown variations in antigenicity. With the availability of a mouse protection test, there seems to be a sounder basis for selection, even though we recognize that mouse protection cannot be translated directly into terms of child protection.

As might have been expected, the 5 rough strains tested were non-protective. Among the 36 smooth cultures, the variations in ED/50's of the majority were within a relatively small range, suggesting that in general a culture with smooth characteristics would have protective properties. The variations do point out a small group of cultures for further study in repeated tests to determine whether the low ED/50's represent a true superiority in protective properties.

In relation to vaccine production the experimental data presented emphasize the need for the greatest care in the selection and maintenance of smooth strains, and suggest an approach to the study of other factors.

SUMMARY AND CONCLUSIONS

Virulence

A mouse virulence test for cultures of *H. pertussis*, using intracerebral injection of the infective dose, has been outlined.

Of 70 smooth strains of *H. pertussis*, all showed virulence within the range of the test which employed test doses of 10^3, 10^5, and 10^7; 6 rough strains did not show virulence.

The 70 smooth strains fell roughly into groups of greater or lesser virulence; approximately 20 per cent were in the more virulent group and killed the majority of a group of mice in an intracerebral dose of 1,000 or fewer organisms.

Of 33 parapertussis cultures, only 2 showed virulence in the highest dose tested; the others did not. The 4 bronchiseptica strains were all virulent, 3 of them in the more virulent range.

Protective properties

The mouse protective ED/50's of vaccines prepared from 36 single cultures have been listed and the results evaluated in the light of 45 different tests of reference antigen 10-536. Single tests have indicated a group of cultures for further study in repeated tests in the attempt to find superior strains for vaccine production.

Vaccines prepared from 5 rough strains of *H. pertussis* and 2 strains of parapertussis gave essentially no protection; one strain of *Br. bronchiseptica* gave very little protection.

Correlation of virulence and protective properties

The 5 rough strains tested were non-

virulent and also non-protective when used in vaccines in mouse tests.

Among the 36 smooth strains tested there was no quantitative correlation between virulence and mouse protective properties.

ACKNOWLEDGMENT: The authors are grateful to E. S. Weiss, Tuberculosis Control Division, U. S. Public Health Service, for his assistance in the analysis of the data. They also acknowledge the technical assistance of Carol Drooger and Tom Wyant.

REFERENCES

1. Kendrick, P. L., Eldering, G., Dixon, M. K., and Misner, J. Mouse Protection Tests in the Study of Pertussis Vaccine: A Comparative Series Using the Intracerebral Route for Challenge. *A.J.P.H.*, 37, 7:803–810 (July), 1947.

2. National Institute of Health—Minimum Requirements: Pertussis Vaccine, March 25, 1948.

3. *Diagnostic Procedures and Reagents*, 2nd Ed., 1945. p, 169. New York: A.P.H.A.

4. Litchfield, J. T., Jr., and Fertig, J. W. On a Graphical Solution of the Dosage Effect Curve. *Bull. Johns Hopkins Hosp.*, 69, 3:276–286 (Sept.), 1941.

5. Weiss, E. S. An Abridged Table of Probits for Use in the Graphic Solution of the Dosage-effect Curve. *A.J.P.H.*, 38, 1:22–24 (Jan.), 1948.

Short Course in Sewage and Industrial Waste Disposal Problem

The School of Public Health, University of Michigan, announces a 2 day short course to be given at the request of the Michigan Sewage Works Association. It is designed to meet a need indicated by the Association for a comprehensive technical review, analysis, and interpretation of the basic scientific considerations involved in problems of sewage and stream pollution. The course is presented especially for the benefit of the scientific worker of industrial and official agencies involved in sewage and industrial waste disposal. Registration is $5, through the School of Public Health, Ann Arbor, Mich.

The Diphtheria Epidemic in Amsterdam

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I. Spread of the Disease; Significance of Types

BEFORE 1939 diphtheria in the Netherlands was rare, in contrast to the German territories bordering the Dutch frontier where a severe epidemic raged. The first increase of diphtheria in the Netherlands was noticed in 1938–1939 in the south-eastern provinces near the German border. However, there was little diphtheria elsewhere in the country. In May, 1940, the Netherlands were occupied by the German armies, and contact of Dutch people with Germans became more frequent. Table 1 shows diphtheria morbidity in the Netherlands as a whole, and separately in Amsterdam, beginning with 1918, in which year diphtheria was more prevalent than it had been at any time since 1900. In 1944–1945 the data for the country as a whole were less reliable than those for Amsterdam because the south and middle parts became war territory. In Amsterdam, reporting continued and all cases were controlled by the public health authorities.

FREQUENCY OF THE VARIOUS TYPES OF DIPHTHERIA BACILLI IN AMSTERDAM

In July, 1939, typing became part of the routine work in public health laboratories. Till September, 1940, we isolated among the Amsterdam patients only mitis strains with the exception of two atypical gravis strains and one intermedius strain. However, among a group of 96 German Jewish refugee children in September, 1939, a diphtheria epidemic broke out of such a severe character as had hitherto been unknown in Amsterdam. From 26 patients 20 strains of diphtheria bacilli were cultivated, all of which belonged to the typical gravis type. The children were rigorously isolated and no con-

TABLE 1

Diphtheria Morbidity per 10,000 Inhabitants

Year	*Netherlands*	*Amsterdam*	*Year*	*Netherlands*	*Amsterdam*
1918	20.0	29.5	1933	5.1	7.0
1919	16.2	25.7	1934	3.6	4.4
1920	11.9	22.3	1935	2.1	1.7
1921	10.9	25.9	1936	1.8	1.0
1922	6.7	17.5	1937	1.2	0.8
1923	5.8	13.0	1938	1.5	1.6
1924	6.3	14.8	1939	1.4	1.0
1925	6.4	15.7	1940	1.9	1.2
1926	4.9	12.2	1941	6.0	2.1
1927	4.8	7.3	1942	21.5	17.3
1928	5.8	6.3	1943	62.3	98.2
1929	6.3	6.0	1944	65.8	102.5
1930	9.5	8.5	1945	53.5	73.5
1931	7.1	6.3	1946	28.6	48.7
1932	6.6	8.0	1947	11.0	15.7

tacts with the Dutch population occurred.

After September, 1940, several intermedius infections were diagnosed. The first cases were contacts of children who had returned from Austria. The disease did not assume an epidemic form and in the following months only isolated intermedius infections were found, many of whom were in German contacts.

After August, 1941, the first gravis cases in Dutch people were seen. These were practically all in German contacts. No cases were reported as developing from contact with people in the southeastern provinces. The gravis infections caused a severe form of the disease; often many patients in one family were ill and several died, but the disease remained confined to immediate contacts. This situation lasted till the summer of 1942, when all at once in August, the epidemic spread like fire among the population. In the first half of the year, 123 cases were reported; in the second half, 1,075. Table 2 gives the number of families infected with the various types in the first war years.

The prevalence of all types increased, but infection with intermedius and gravis strains constituted the larger part of the rising epidemic. Mitis infections were distributed evenly over the whole city and remained so during the epidemic. It appears, therefore, that a small number of imported cases may have been responsible for the increasing prevalence of gravis and intermedius types. Intermedius and gravis infections, however, which first were irregularly scattered, in the sudden increase in 1942 became mainly localized in certain foci. These foci were noted especially in those regions where dwelling conditions were poorest. As the epidemic continued, gravis and intermedius types also spread over the whole city.

At the height of the epidemic, all strains isolated during one month were typed. In 1944, this became impossible owing to the very severe restrictions. Only starch fermentation was

TABLE 2

Number of Families Infected with the Various Types of Diphtheria Bacilli

Year	*Month*	*Mitis*	*Intermedius*	*Gravis*	*Not Typed*	*Total*
1940	I–IX	43	0	1 (atypical)	22	66
	X–XII	31	11	0	7	49
1941	I–XII	103	9	7	17	136
1942	I–VI	103	4	10	17	134
	VII–XII	243	140	269	207	859

TABLE 3

Distribution of Types of Diphtheria Bacilli in Patients and Carriers in the Amsterdam Epidemic

			Percentage			
Year	*Month*	*Total Examined*	*Mitis*	*Intermedius*	*Gravis*	*Non-typable* *
1939	IX–XII	32	(91)	(3)	(6)	0
1940	I–XII	86	(86)	(13)	(1)	0
1941	I–XII	140	82	8	10	0
1942	I–XII	1,364	50	13	36	1
1943	X	836	25	29	45	1
1944	V–X	725	66(?)		34(?)	?
1945	XI	318	62	12	23	3
1946	V–X	669	59	11	23	7
1947	I–V	305	43	18	29	10
	VIII–XII	372	45	8	42	5
1948	I–VI	295	57	8	31	4

* The non-typable strains, nearly all virulent ones, were studied by Dr. M. Stoppelman.[1]

TABLE 4

Familial Secondary Cases According to Types of Bacilli and Size of Family *

	Families					
	Large	*With Multiple Cases*	*Per cent*	*Small*	*With Multiple Cases*	*Per cent*
Type of Bacilli						
Gravis or intermedius	130	53	40.8	289	44	15.2
Mitis	79	18	22.8	271	24	8.8
Difference			18.0 + 6.4			6.6 + 2.7

* "Large families" had more than 3 children of 0-15 years; "small families" 3 or less.

tested, but this gave an approximation of the percentage of gravis infections.

When the epidemiology of the various types were studied separately it became obvious that gravis and intermedius types were more aggressive than mitis strains. From 11 patients who, in spite of a negative Schick reaction, got diphtheria, we isolated only strains of the intermedius (3 times) or gravis types (8 times), but never mitis strains. We also noted a healthy carrier of the mitis type who acquired typical gravis diphtheria after contact with gravis carriers.

In a home for boys between 10 and 18 years old a diphtheria epidemic broke out. A culture survey of the 92 inmates showed intermedius and mitis carriers; among the latter both avirulent, and virulent strains. The 32 patients, however, suffered from intermedius diphtheria. None was infected with a mitis strain.

In families, patients infected with gravis and intermedius strains were the origin of more secondary cases than were patients with mitis infections, as is shown in Table 4.

In both large and small families the intermedius and gravis types were found in multiple familial cases nearly twice as often as the mitis type.

SUMMARY

The diphtheria epidemic in Amsterdam seemed to be caused partly by the importation of gravis and intermedius strains from Germany. However, the peak of the epidemic was delayed for two years after first contacts with Germans. The prevalence of mitis type increased after 1941, but was overshadowed by the other types in 1943. Later the mitis type was responsible for nearly half of all cases. Gravis and intermedius strains were more aggressive than the mitis type, but not always the most lethal.

II. Case Fatality Rate; Age Distribution; Schick Reactions

Fatality rates. In the Amsterdam diphtheria epidemic (1942–1947), just described, the case fatality rate was never high, despite the fact that many cases were caused by intermedius and gravis strains. At the height of the epidemic (1943–1946), the fatality rate was lower than in the beginning and in the end (Table 5).

The very poor nutrition of the population at this time seems to have had no influence. In the years of most extreme famine (1944–1945) in all age groups except the infants, lethality was lower than in the year when the epidemic began (1942) when nutrition was still adequate. Even the scarcity of therapeutic serum in those years seems not to have led to a higher lethality.

The high mortality among infants in 1945 coincides with an exceptionally high general infant mortality. The

TABLE 5

Case Fatality Rate of Diphtheria in Amsterdam

Year	Number of Cases	Lethality (Per cent)	Year	Number of Cases	Lethality (Per cent)
1930	642	1.7	1940	99	4.0
1931	482	2.9	1941	169	3.5
1932	617	2.7	1942	1,367	4.9
1933	588	2.0	1943	7,687	3.5
1934	342	2.3	1944	7,932	2.3
1935	132	3.0	1945	5,588	3.5
1936	83	3.6	1946	3,823	3.2
1937	66	3.0	1947	1,265	5.0
1938	128	6.2			
1939	79	1.3			

number of infants suffering from diphtheria was always relatively low. Percentages therefore have less value than in other age groups.

A certain number of false reports of diphtheria were made to deceive the Germans, but the public health nurses who visited the homes kept our own records accurate. This is evident from the fact that in a certain period in 1943, the lethality of all cases in our records (2,019) was 3.1 per cent. In 1,380 of these, diagnosis was confirmed by pure cultures, which had been typed. In this group the lethality was 3.2 per cent, which is practically the same.

The lethality of 487 cases of gravis infection in 1942 was 7.5 per cent. In 1943 it had dropped to 4.6 per cent of 2,325 cases (typed by means of a positive starch fermentation); a difference of 2.9 ± 1.3 per cent. The lethality of 2,114 intermedius and mitis patients together (starch fermentation negative) in 1943 was 1.4 per cent, in 1942 it had been 2.5 per cent of 369 cases; a difference of 1.1 ± 0.8 per cent.

Age distribution. In the course of the epidemic the age distribution of cases changed considerably, showing a shift to older age groups (Tables 6 and 7).

The same phenomenon has been observed in several other parts of Europe (Ipsen in Copenhagen,[2] Walker in Germany,[3]) and has been ascribed to the effect of the immunization of large numbers of children, in contrast with the adults who were not immunized.

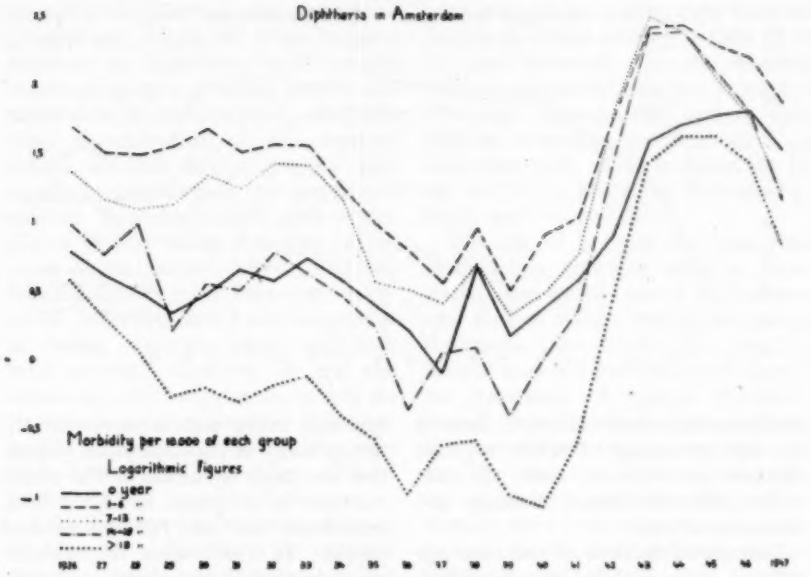
However, other factors also influence age distribution of diphtheria. Percentages give no real insight into this problem because they are interdependent. We therefore have made curves of the logarithms of the morbidity figures in each age group (Figure I). From the beginning of the epidemic there has been an enormous spread of diphtheria bacilli, especially among children. In 1943–1944, morbidity rates reached their peaks in all age groups between 1 and 18 years. Most of those who escaped illness were already immune or became spontane-

TABLE 6

Percentage of Diphtheria Patients in the Various Age Groups

Year	Morbidity by Age Group				
	0	1–6	7–13	14–18	18
1940	3.0	57.0	27.0	8.0	5.0
1941	3.0	47.2	30.6	9.7	9.1
1942	0.7	31.4	41.4	14.4	12.1
1943	0.7	24.7	32.7	19.8	22.0
1944	1.5	24.5	24.1	19.2	31.1
1945	1.7	25.2	15.7	13.6	44.0
1946	3.8	30.2	12.1	10.5	43.5
1947	4.7	45.0	9.9	7.0	33.6

FIGURE I



ously immunized. In the following years this resulted in a decline in morbidity rate in the 1–18 years group because there were only a few susceptibles left. This process was most rapid in school children (7–13 years) among whom the spread of diphtheria bacilli was greatest. That the spread of diphtheria bacilli, however, did not immediately diminish, is evident from the continued high morbidity rate among infants, the curve of which does not fall before 1947.

We assume that the spread of diphtheria bacilli among adults was from the beginning less intensive. It was longer, therefore, before the susceptible adults became ill, and spontaneous immunization was much less frequent. In addition, because of the extremely low morbidity in the preceding years, few had become immune, with the result that there was a continued high morbidity rate among adults.

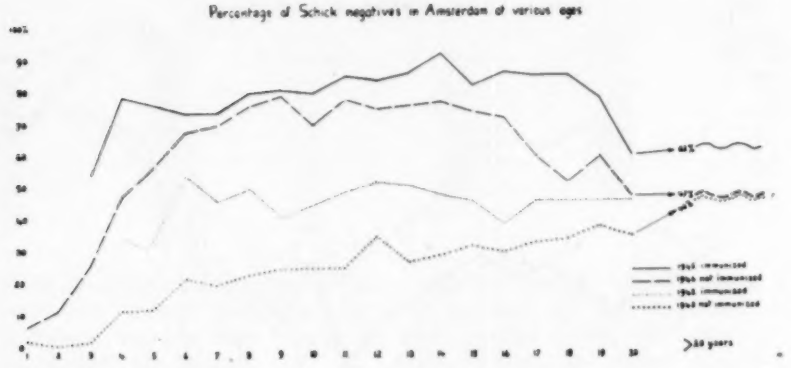
Schick reactions. The Schick rates at the various ages, determined in 1942 and 1946 and which will be discussed later (Figure II), are in accordance with the above surmise. Evidence for the intensive spread of diphtheria

TABLE 7

Case Fatality Rate in Diphtheria in Various Age Groups

	Fatality Rates in Age Groups					
Year	*0*	*1–6*	*7–13*	*14–18*	*18*	*All Ages*
1942	13.5	9.9	2.7	2.0	2.6	4.9
1943	16.4	6.0	3.4	2.5	1.4	3.5
1944	19.3	4.5	1.7	1.4	1.1	2.3
1945	36.8	7.4	1.6	0.8	1.5	3.5
1946	12.4	6.5	2.0	1.0	1.0	3.2
1947	10.0	7.3	4.0	2.3	1.6	5.0

FIGURE II



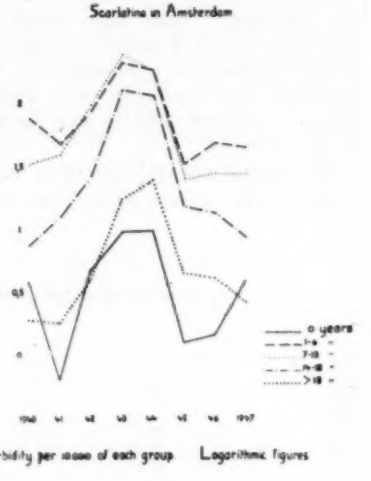
bacilli among school children is seen in the high percentage of Schick negative children (6–9 years) who did not suffer from the disease although not immunized (1946).

Immunized children of the same age suffered only slightly less morbidity. We infer that immunization had relatively little influence on the age distribution of diphtheria in this outbreak. This opinion is strengthened by the observation that in a former diphtheria epidemic (1917–1921) before immunization was general, the same shift to older age groups was observed, although in a lesser degree. Likewise, in the scarlatina epidemic (1941–1945) when no immunizations against this disease were performed, the same phenomenon was observed. Then, also, a shift to the older age groups was seen.

Among the adults more women than men suffered from diphtheria. In 1942, in the 14–18 years group, 66 per cent were women; in the group 18 years and older, 72 per cent. In 1943 these figures were 57 and 74 per cent, respectively. In the younger groups there was no difference. This may be due to a more frequent exposure of the adult women because of their more intensive contact with children.

In the beginning of 1942, before the epidemic broke out, a survey of the susceptibility of the Amsterdam population was made by means of the Schick reaction in a group of 5,763 non-immunized and of 2,026 immunized people. In 1946, when the epidemic was subsiding, a new survey was made in 3,815 non-immunized and 2,990 immunized people. The results of these surveys are summarized in Figure II. The nature of these data can be ac-

FIGURE III



counted for by assuming an intensive spread of diphtheria bacilli among the younger age groups and a less frequent exposure to diphtheria bacilli in the older age groups, in which natural immunization is less frequent. In addition, a conversion of the negative Schick reaction into a positive one, especially prominent in the groups less exposed to contamination, must occur. Figure II also shows that even in the years of the famine (1944–1945) immune processes must have been fairly active; otherwise such a high percentage of Schick negatives would not have been attained. However, we are well aware that antibodies alone do not determine the resistance against diphtheria bacilli; numbers of Schick-positive persons become Schick-negative without having suffered from the disease.

The Schick-negative rate, which is the same for both sexes in the youngest groups, showed a difference at school ages. In groups of various economic status the girls of 6–14 and 17 years always had a lower Schick-negative rate than the boys of the same ages. In 1942, of 744 boys (6–17 years old) 30.5 per cent were Schick-negative; of 719 girls, 23.8 per cent; a difference of $6.7 + 2.3$ per cent.

In the preschool ages, figures for both sexes were the same and in those older than 30 years there was a higher percentage of Schick-negative reactors among women than among men.

These observations can be accounted for by a relatively larger Schick conversion rate from positive to negative among females than among males, which in the older age groups, is counterbalanced by the greater contact of women with infected children.

In infants of 0–6 months the Schick reaction is often negative, even when the mother is Schick-positive herself (3 of 11 cases observed). So the skin and mucous membranes seem not to react in the same way at the various ages. Cellular immunity probably plays an important part. This is borne out by the studies of Frobisher, Parsons, Updyke, etc.[5, 6]

We saw in a home for unmarried mothers an infection with a gravis strain imported by one of the mothers who suffered from a very severe faucial diphtheria from Germany. Fourteen infants were infected but none showed the symptoms of typical diphtheria. Several had a purulent discharge from the nose without further symptoms. It may be, therefore, that gravis strains are of variable pathogenicity, but we think it more likely that there is a difference in reactivity between infants and older children.

SUMMARY

The diphtheria case fatality rate during the wartime epidemic in the Netherlands was relatively low, especially when the epidemic was at its peak.

The age distribution of morbidity showed a shift to older age groups, which may be explained to a large extent by a rapid spread of diphtheria bacilli among children, which caused early and high morbidity and spontaneous immunization rates, in contrast to the adults, among whom contact and immunization with diphtheria bacilli were much less and among whom the epidemic therefore lasted longer.

The Schick tests performed on large groups of the population in different years support this view.

III. Infection Rate; Immunization

It was not possible to determine exactly the prevalence of diphtheria bacilli among the healthy population at regular intervals. From 1930 to 1935, between 200 and 800 children, not known to be diphtheria contacts, were

examined annually and showed gradually declining percentages of positives: from 11.4 to 3 per cent. In 1940 we examined 1,119 children of the poorer classes and found only 5 (0.5 per cent) avirulent mitis strains. Thus, immediately before the outbreak of 1941 the percentage of carriers among those children was negligible.

With regard to Schick rates, there were definite differences between children in various economic groups in 1942–1943. Of 347 children of well-to-do families, between 6 and 14 years of age, 11.3 per cent had a negative Schick reaction. Of 794 children of poorer families of the same age, 33 per cent were negative; a difference of $21.7 + 2.4$ per cent. Of 255 children 12–14 years of age, from middle class parents, 17.3 per cent were negative; while 40 per cent of 293 children of poor families were negative; a difference of $22.7 + 3.7$ per cent. These figures indicate a relationship between Schick status of children and economic status of their parents. This may in turn be directly related to another factor which influences the spread of diphtheria bacilli and thereby the Schick reaction: namely, the number of children in a family who attend a school. There were no significant differences between the groups with two, three, or more children at school. We therefore compared only those families having one child at school (A), with those having more than one child attending school (B) (Table 8-A and B).

In 1946 at the end of the school season there was no longer any difference between groups A and B even in the youngest children (Table 8).

A great difficulty in measuring the rate and extent of spread of diphtheria bacilli by means of Schick test data is lack of knowledge of the frequency of reversion of a negative Schick reaction to a positive. We know that it does happen, but not how often. We saw, for example, that of 105 recovered diphtheria patients, at least 23 later had a positive Schick reaction. It is of interest that in 1942 the curve indicating conversion of positive to negative Schick reactions in school children remained flat after the first rise in the group which enters school. This can only be accounted for by a rather frequent reversion of Schick-negative reaction to positive in spite of the fact that the prevalence of diphtheria bacilli

TABLE 8-A

Percentage of Schick-negative Children in Families with One (A) and with More Children (B) Attending School (1942 at Beginning of the School Year)

Group	Age	Children Tested	Per cent Schick-Neg.	Age	Children Tested	Per cent Schick-Neg.	Age	Children Tested	Per cent Schick-Neg.
A	4	178	7.3	5	167	10.2	4 + 5	345	9
B	4	262	14.1*	5	301	14.3	4 + 5	563	14.2†

* Difference $7.2 \pm 2.9\%$. † Difference $5.2 \pm 2.1\%$.
These figures point to a great influence of the school on the spread of diphtheria bacilli.

TABLE 8-B

Percentage of Schick-negative School Children in Groups A and B in 1946 at the End of the School Year

Group	Age	Immunized Children Tested	Schick-Neg. Per cent	Non-immunized Children Tested	Schick-Neg. Per cent	Age	Immunized Children Tested	Schick-Neg. Per cent	Non-immunized Children Tested	Schick-Neg. Per cent
A	4	198	81.3	212	47	5	311	81.7	257	55
B	4	329	85	305	48	5	414	81	394	56

must have been highest in this age group.

IMMUNIZATION

Immunization against diphtheria has never been compulsory in Amsterdam but it was practised on a fairly large scale by the Municipal Health Service and also by private practitioners; the last in unknown numbers. The population of Amsterdam during the last decade has approximated 800,000, with about 12,000 births annually. From 1930 to 1934 a yearly average of 5,000 children were immunized by the Public Health Service with three injections of toxoid (16 L_f). From 1936 on a stronger toxoid (20 L_f) was used in only two doses of 1 and 1.5 ml. Before the war a yearly average was reached of 5,600 immunizations; from 1940 to 1943, an average of more than 16,000 were immunized annually, with a minimum of 2,700 in 1940 and a maximum of 38,000 in 1943.

In the second half of 1944 and in 1945 all immunizations had to be suspended because of the famine and other difficulties. In 1946 and 1947, immunizations again amounted to 10,000 and 47,500, respectively. However, a certain percentage of these were revaccinations (in 1943 nearly 30 per cent, in 1946 nearly 50 per cent). The results of these campaigns are reflected in the data of the school physician (Dr. Dallmeyer). In 1942–1944, when entering the kindergarten, 34, 58, and 55 per cent, respectively, of the children had been previously immunized against diphtheria. For the primary school these figures were 42, 48, and 53 per cent, respectively. So immunization was not neglected as G. W. Anderson suggested.[7]

The effect of these immunizations upon the course of the epidemic is difficult to determine. It cannot be measured by the data on morbidity in the various age groups (Figure I), which can be accounted for quite well by the difference in spread of diphtheria bacilli in these groups. Since immunizations were performed only on a voluntary basis there was necessarily a certain selection of the immunized, and therefore comparisons lose much of their significance. We have tried to obtain a more reliable measure of the effect of immunization by comparing the number of immunized among the patients and among the healthy contacts of the same families. In these two groups circumstances are comparable (Table 9).

In the older age groups there is practically no difference. We are aware of the fact that in a number of families the importation of the disease may have been prevented by the immunization but we think this does not alter the value of the figures in Table 9.

A curious fact is that when the different types of diphtheria bacilli were taken into consideration there was no difference either. In 1942, of all members of the families in which a gravis case had been diagnosed, 29.4 per cent had been previously immunized; of the gravis patients themselves 28.4 per cent. For the intermedius type these figures were 31.8 per cent and 27.6 per cent,

TABLE 9

Percentages of Immunized Children among Diphtheria Patients and Their Contacts in the Same Families in 1942

	3–5 Years		6–9 Years		10–14 Years	
Children	*Number*	*Per cent Immunized* *	*Number*	*Per cent Immunized*	*Number*	*Per cent Immunized*
Patients	175	15.3	239	27.8	298	28.6
Contacts	190	21.9	305	30.9	510	29

* Among the 3–5 years group there is some difference (6.6 ± 4%) but this is not significant.

respectively; for mitis infections, 23.6 and 23.4 per cent.

The results obtained with the Schick test also gave the impression that the immunizations had not been very satisfactory. For example, in 1942 the immunized group showed only about 50 per cent Schick-negatives (Figure II). Before 1942 the prevalence of diphtheria bacilli among the population must have been extremely low. Evidently spontaneous immunization by means of contact with normally circulating diphtheria bacilli was rare. In the artificially immunized children the stimulus of the toxoid must have been too small to keep the level of antitoxic resistance high, especially in those to whom only two injections of toxoid had been given. In a comparative study in 1942, a rapid decline was seen in the percentage of Schick-negatives one year after immunizations, except among those to whom three injections of toxoid had been given in combination with scarlatina toxin. In these groups after 2 years 92 per cent were still Schick-negative. In those children who had received only two injections of the strong diphtheria toxoid, no more than 41 per cent reacted negatively after 2 years. In previous experiments these vaccines had all been checked by means of the Schick reaction 3 months after immunization and had given good results. It seems, therefore, that a spontaneous reversion of Schick-negative to positive must have been fairly rapid and frequent.

The considerations related above all point to the fact that in the great wartime epidemic of diphtheria in Amsterdam, immunization on a fairly large scale could not prevent the outbreak nor alter its course to a large extent. We think that a better antigen, given in more than two injections, in the whole younger population, might have produced better results, and should be advocated for the future. This is in agreement with Frobisher.[8]

SUMMARY

1. Before the wartime epidemic very few diphtheria bacilli were circulating among the population.

2. During the epidemic the circulation must have been extremely high among children and less among adults which is reflected in the Schick and morbidity curves.

3. When the epidemic began to subside it did not diminish immediately.

4. The school was the place where most infection occurred.

5. The Schick status of children was correlated with the economic status of the parents.

6. Immunization against diphtheria was practised on a fairly large scale but it seems to have had little influence on the course of the epidemic.

REFERENCES

1. Stoppelman, M., 1948, Antonie V. Leeuwenhoek (in Press).

2. Ipsen, J. *Epid. Inform. Bull.* UNRRA, 2:369, 1946.

3. Walker, J. V. *Lancet*, 1:422, 1947.

4. Noordam, A. L. Doctorate Thesis, Amsterdam, 1948.

5. Frobisher, M., Jr., and Parsons, E. J. Resistance Against Toxigenic *C. diphtheriae* following Injection of Non-toxigenic Diphtheria Bacilli. *Am. J. Hyg.*, 37:53, 1943.

6. Frobisher, M., Jr., and Updyke, E. L. Further Studies on the Immunization of Rabbits to Toxigenic *C. diphtheriae* by Injections of Nontoxigenic Diphtheria Bacilli. *J. Bact.*, 54:609, 1947.

7. Anderson, G. W. *A.J.P.H.*, 37:1, 1947.

8. Frobisher, M., Jr., and Updyke, E. L. Further Studies on the Immunization of Rabbits to Toxigenic *C. diphtheriae* by Injections of Nontoxigenic Diphtheria Bacilli. *J. Bact.*, 54:609, 1947.

Observations on the Epidemiology of Shigellosis among Institutional Inmates in Puerto Rico*

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BACILLARY dysentery is known to be highly endemic in tropical and subtropical areas. According to Costa Mandry,[1] many references to epidemics of diarrheal disorders are found among the reports of early historians of Puerto Rico. In 1902, Flexner recovered the dysentery bacillus from a soldier who had been stationed on the Island and had presumably acquired the infection at the time. Some years after, González Martínez and Costa Mandry[2] studied several diarrheal outbreaks which proved to be of bacillary origin. In 1941, Watt, Hardy, and DeCapito[3] reported an infection rate of 4 per cent among normal population groups and one of 10 per cent among inmates of the Puerto Rico Psychiatric Hospital.

The present study was conducted in two of the wards of the Puerto Rico Psychiatric Hospital from January, 1946, to January, 1947. The first ward is one where all male admissions to the institution are kept for periods of observation ranging from 1 to 6 weeks. In addition, the ward is used as a sort of infirmary for inmates suffering from concurrent acute diseases. It has a capacity of 75 beds. During the period of study 527 inmates were observed indicating a large turnover of patients.

The other ward, with a capacity of 100 beds, is used for the care of women inmates, mostly inmates who have been confined in the institution for a long time. During the course of this survey, a total of 219 female inmates were studied.

Sanitary conditions are very poor in both wards. Most of the inmates eat their meals either sitting on their bed or on the floor. Many of them defecate on the floor, especially in the evenings. Surprisingly enough, very few flies are seen, yet conditions in general are ideal for person to person transmission and transmission through the contamination of foods.

At weekly intervals, fecal specimens were obtained from inmates in both wards by the rectal swab method described by Hardy, *et al.*[4] These specimens were immediately planted on S.S. agar plates and incubated for 24 hours at 37° C. Suspicious colonies were then transplanted to Krumwiede's triple sugar slants and, after incubation for 24 hours at 37° C., suspicious growths were transplanted to extract broth for later planting into carbohydrate-containing media for study of fermentation and indole reactions. Cultures were finally typed, using the precipitin test described by González and Morales Otero.[5]

* Read before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

TABLE 1

Shigellosis Study — January, 1946, to January, 1947
Puerto Rico Psychiatric Hospital
Results of Examination of Inmates

		Inmates Examined	Observed Infected		Specimens Examined	Positive		Specimens per Inmate
			Number	Percentage		Number	Percentage	
Men's Ward	Inmates admitted before Nov. 1945	304	44	14.5	1,912	58	3.0	6.3
	Inmates admitted after Nov. 1945	223	40	17.9	981	63	6.4	4.4
	All inmates	527	84	15.9	2,893	121	4.2	5.5
Women's Ward	Inmates admitted before Nov. 1945	192	53	27.6	3,531	91	2.6	18.4
	Inmates admitted after Nov. 1945	27	9	33.3	168	18	10.7	6.2
	All inmates	219	62	28.3	3,699	109	2.9	16.9
Both Wards	Inmates admitted before Nov. 1945	496	97	19.6	5,443	149	2.7	13.7
	Inmates admitted after Nov. 1945	250	49	19.6	1,149	81	7.0	4.6
	All inmates	746	146	19.6	6,592	230	3.5	10.2

PREVALENCE OF INFECTION

A total of 6,592 fecal specimens from 746 inmates was collected and examined and 230, or 3.5 per cent, were found positive (Table 1). Of the specimens obtained from the male inmates, 4.2 per cent were positive as compared to 2.9 per cent of those obtained from female inmates.

So as to compare the prevalence of infection among inmates who had been in the institution for a long time with that among inmates who had been recently admitted, the 746 inmates of both wards were divided into two groups; one composed of those admitted before November, 1945, and the other of those inmates admitted after November, 1945. Of the specimens obtained from the second group, 7.0 per cent were positive as compared to only 2.7 per cent in the first group. The higher percentage of positive samples found among the men may be explained by the fact that among them the proportion of inmates admitted after November, 1945, was larger.

Of the total of 746 inmates examined, 146, or 19.6 per cent, were found infected at one time or another: 84 of the 527 men and 62 of the 219 women (15.9 per cent and 28.3 per cent, respectively). It must be borne in mind, however, that female inmates were observed, on the average, for a period three times as long as the male inmates and that 16.9 specimens were examined per each female inmate, as compared to only 5.5 samples per each male. The proportion of inmates admitted before November, 1945, that were infected was 19.6 per cent, the same as for inmates admitted after November, 1945. Again it must be borne in mind that the inmates admitted after November, 1945, were observed for about one-third of the time that obtained for those admitted before November, 1945.

TYPES OF ORGANISMS ISOLATED

The different types of organisms isolated are tabulated in Table 2; 52.8 per cent belonged to the Flexner group, of which the most frequently found were types IV and I–III. Next in frequency of isolation was *Shigella schmitzi* (32.5 per cent), followed by *Shigella alkalescens* with 14.7 per cent. *Shigella*

TABLE 2

Shigellosis Study
Puerto Rico Psychiatric Hospital
Type of Organisms Isolated

	Sh. flexner						*Sh. schmitzi*	*Sh. alkalescens*	*Total*
	I	*II*	*III*	*IV*	*VI*	*I–III*			
Number	9	12	8	55	1	37	75	34	231
Percentage	3.9	5.2	3.5	23.8	0.4	16.0	32.5	14.7	100.00

shiga and *S. sonne* were never isolated. *S. shiga* has never been reported from Puerto Rico, though *S. sonne* has. In a previous survey,[6] conducted by the writers in this same institution, one of the most prevalent Flexner types of *Shigella* was type VI, or Newcastle. During the present study this organism was isolated on one occasion only.

DURATION OF INFECTION

The number of consecutive weeks during which the various organisms were isolated was recorded. In estimating the average duration of infection from these data, it is assumed that, on the basis of one isolation, infection could have lasted from 1 to 13 days; that when the organism was isolated twice consecutively, the period of infection could have been anywhere from 8 to 20 days, and so on. Duration of infection was thus estimated at from 8 to 23 days for all inmates, 6 to 21 days for inmates admitted before November, 1945, and 12 to 30 days for inmates admitted after November, 1945.

A small number of admissions were followed up from day to day to determine the duration of infection more exactly. Of 75 such admissions, 16 were infected and the average duration of the infection was 15 days. In the entire study the infection of shortest duration was of 1 day and the longest of 51 weeks.

TIME OF INFECTION

Of the 746 inmates studied, 42, or 5.6 per cent, were found positive on the first sample examined. Of the 704 inmates found negative on the first examination only 507 were examined again, and of these, 47, or 9.3 per cent, were found positive on the second to fifth examination. Only 282 of the 460 that were still negative were examined further and 24, or 8.5 per cent, were found positive on the sixth to tenth specimen. On the 11th to 20th additional specimen taken from 172 of the inmates who had remained negative, 11, or 6.4 per cent, were positive.

Inmates admitted after November, 1945, were observed to become infected earlier than those admitted prior to November, 1945. There was not much difference between the two groups in the proportion of infections on the first examination: 6.0 per cent in the former group as compared to 5.6 per cent in the latter. On the second through fifth specimens, however, 13.1 per cent of the newly arrived were observed infected in comparison to only 7.5 per cent of those admitted before November, 1945.

SEASONAL VARIATION

In January, 1946, the percentage of positive samples from inmates in both wards was 6.4, it went down to 3.8 in February and 1.8 in March, staying at a low level through June. In July this rate went up to 4.4, staying at a higher level through December, going down to 2.6 in January, 1947 (Figure 1).

The infection rates for inmates admitted before and after November, 1945, show similar trends, the infection rates for the inmates admitted after November, 1945, being much higher

and the peaks steeper, however. It should be noticed that the rise in July is much slower among the female inmates, rising from 1.2 per cent in June to 1.7 per cent in July to 2.6 per cent in August, reaching a peak of 6.6 per cent in September, while among the male inmates the rate rose from 2.1 per cent in June to a peak of 7.7 per cent in July (Figure 2).

INFLUENCE OF ADMISSIONS ON PREVALENCE OF INFECTION

It has been pointed out that the infection rates among recently admitted inmates were higher, especially during their first weeks of stay in the wards, and that infections among these inmates lasted for a longer period of time. From these observations, it could be expected that an increase or a decrease in the number of new inmates admitted would influence the prevalence of infection in the ward. In Figure 1, in addition to the infection rates per month, the admissions during each month have been plotted. A suggestive similarity in the contours of the curves representing the infection rates and the number of admissions is observed; the peaks and dips in the curves representing the admissions usually precede those in the curve representing the infection rates both for inmates admitted before and after November, 1945.

REINFECTION

In a previous study conducted with these same patients[7] and during the present one, 162 inmates were followed

FIGURE 1

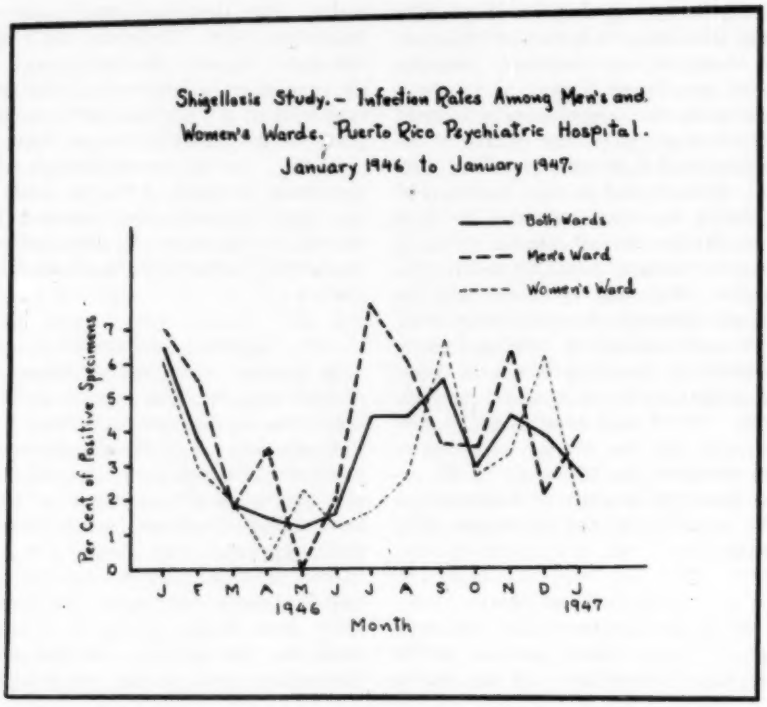
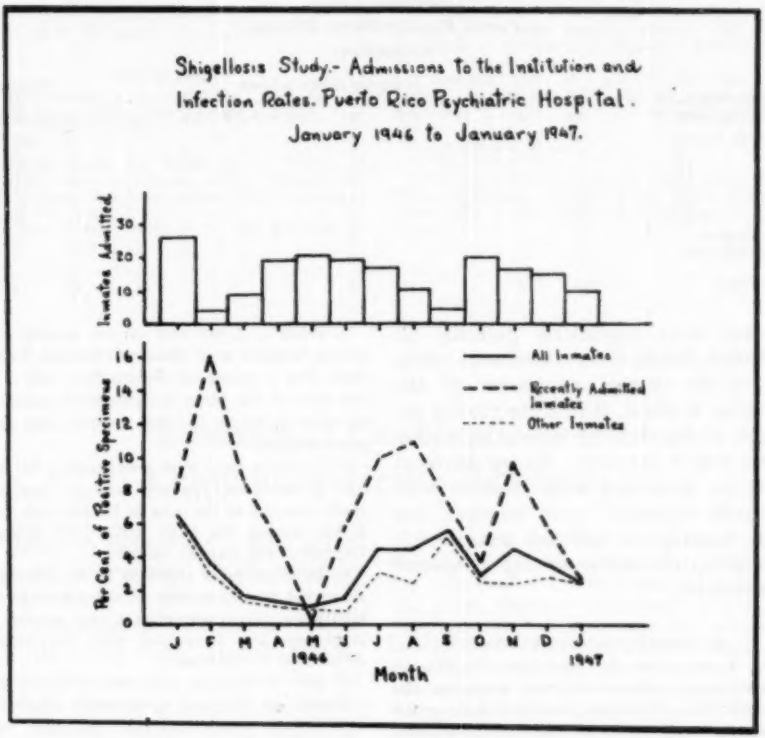


FIGURE 2



up for more than 4 weeks after their first infection and in 45, or 27.8 per cent, reinfections were observed. A reinfection was recognized if a patient who had been negative for 4 or more consecutive weeks after the first infection, became infected again with a different *Shigella* organism; or negative for 12 or more consecutive weeks and again infected with the same type of *Shigella* organism. In Table 3 the individuals classified, according to the type of organisms responsible for the first infection, and showing the organisms found in the reinfection are presented.

Patients originally infected with Flexner type IV organisms were found less frequently reinfected; in fact, in 23 patients studied, only one reinfection was noted. If reinfection rates are an index of the immunity produced by infection with these organisms, it can be said that Flexner type IV organisms seem to confer a longer lasting immunity against the different types of *Shigella* organisms isolated in the present study. Such a finding may be explained, in part, by an observation of González,[8] who found that old cultures of Flexner type IV organisms are agglutinated by antisera prepared against practically all members of the Flexner group.

CLINICAL OBSERVATIONS

Owing to the lack of personnel and to the poor coöperation that can be ex-

TABLE 3

Shigellosis Study
Puerto Rico Psychiatric Hospital
Reinfections

Inmates Originally Infected with	*No.*	*Observed Reinfected with*								*Total*	*Percentage of Reinfection*
		I	*II*	*III*	*IV*	*VI*	*I–III*	*Sch.*	*Alk.*		
Flexner Type I	5	..	1	..	3	..	..	..	1	5	100.0
II	31	1	..	..	1	1	3	1	1	8	25.8
III	1	..	..	..	..	..	..	1	..	1	100.0
IV	23	..	..	..	..	..	..	..	1	1	4.4
VI	26	..	3	..	..	..	2	..	..	5	19.2
I–III	34	1	2	..	1	2	..	2	3	11	32.4
Sh. schmitzi	31	..	2	..	2	..	2	4	..	10	32.3
Sh. alkalescens	11	..	..	..	1	..	..	1	2	4	36.4
Total	162	2	8	0	8	3	7	9	8	45	27.8

pected from psychiatric patients, no detailed clinical observations were made. It is the general impression of the writers, however, that acute clinical attacks of the classical type of dysentery were few, if not rare. Benign diarrheal attacks, associated with infection with *Shigella* organisms were frequent, but the majority of infected inmates followed up did not show any symptoms whatsoever.

SUMMARY AND CONCLUSIONS

1. A study on the prevalence of *Shigella* infections in inmates of two wards of the Puerto Rico Psychiatric Hospital was carried out over a period of 13 months—from January, 1946, to January, 1947.

2. Of 6,592 fecal samples examined, 230, or 3.5 per cent, were positive for *Shigella* organisms. These specimens were obtained from 746 inmates, of which 146, or 19.6 per cent, were found infected. The average number of specimens examined per inmate was 10.2.

3. Infection rates were much higher (7.0 per cent) among recently admitted inmates than among those in the institution for long periods of time (2.7 per cent). These rates were higher among men (4.2 per cent) than among women (2.9 per cent).

4. The organisms isolated belonged to the Flexner, *schmitzi*, and *alkalescens* groups of *Shigella;* the types of organisms isolated tended to be different at different times of the study. No shiga or Sonne organisms were isolated, though the latter has often been reported in Puerto Rico.

5. The average duration of infection was estimated at approximately 1 to 4 weeks; duration of the infection was longer in inmates recently admitted to the institution.

6. While 19.1 per cent of the recently admitted inmates were observed infected during their first 5 weeks of observation, only 13.0 per cent of the other inmates were found to be infected during the first 5 weeks that they were studied.

7. Infection rates were lower during the first half of the year, January through June, the cooler months of the year in Puerto Rico, and higher during the latter half, July through December, the warmer months.

8. Infection rates appeared to be influenced somewhat by the number of admissions to the institution, rising soon after a large number of admissions and decreasing when the number of admissions decreased.

9. Of 162 inmates who were infected and followed up for 4 or more weeks after they had lost their infection, 27.8 per cent were reinfected. Those originally infected with the Flexner type IV organism showed less reinfections.

10. It appears from these observations that inmates entering the Puerto Rico Psychiatric Hospital from among the general population, where the prevalence of shigellosis is lower, have less resistance to infection with these organisms than inmates who have been in the institution for long periods of time. This lesser resistance is manifested by higher infection rates after they are admitted to the institution and by a longer duration of infection.

11. Although meager clinical observations were made, it is the impression of the writers that infection with *Shigella* organisms was accompanied by very mild if any symptoms. It was our impression that for the most part infected inmates were in a carrier state.

12. It is evident from this study that infection with *Shigella* organisms does not protect for long against subsequent infections. It may be that frequent infections protect against clinical attacks of classical bacillary dysentery.

NOTE: We are indebted to the members of the Staff of the Puerto Rico Psychiatric Hospital for the fine coöperation and assistance given us at all times.

REFERENCES

1. Costa-Mandry, O. Bacillary Dysentery in Puerto Rico. *Puerto Rico J. Pub. Health & Trop. Med.*, 10:308–348, 1932.

2. *Ibid.*

3. Watt, James, and Hardy, A. V. Studies of the Acute Diarrheal Diseases. XIII. Cultural Surveys of Normal Population Groups. *Pub. Health Rep.*, 60:261–273, 1945.

Watt, James, Hardy, A. V., and DeCapito, T. Studies of the Acute Diarrheal Diseases. IX. *B. Shigella* Dysenterial Infection among Institutional Inmates. *Idem.*, 57:1095–1102, 1942.

4. Hardy, A. V., Watt, James, and DeCapito, T. Studies of the Acute Diarrheal Diseases. VI. New Procedures in Bacteriological Diagnosis. *Pub. Health Rep.*, 57:521–524, 1942.

5. González, Luis, M., and Morales Otero, P. Antigenic and Biochemical Studies of *Shigella Paradysenteriae* in Puerto Rico. *J. Immunol.*, 50:373–376, 1945.

6. Unpublished data.

7. Unpublished data.

8. González, Luis M., Morales Otero, Pablo, and Pérez, J. Enrique. Studies of the Genus *Shigella*. *Puerto Rico J. Pub. Health & Trop. Med.*, V. 21, 1:3–49.

Educational Qualifications of Community Health Educators

"HEALTH EDUCATORS: High standards for professional health educators are set forth in the latest report of the Committee on Professional Education (American Public Health Association). The report, approved by the A.P.H.A. Governing Council in November, outlines seven major areas of knowledge and competence as desirable in health educational personnel.

"They are: (1) *Basic Cultural Education*—use of the English language, general psychology, U. S. and world history; (2) *Basic Sciences*—some knowledge of chemistry, bacteriology, physiology, physics and biology; (3) *Education and Educational Psychology;* (4) *Social Sciences*—background in general sociology, political economy and cultural anthropology; (5) *Public Health Training*—knowledge of principles of organization and administration of public health, methods of communicable disease control, public health statistics; (6) *Public Administration*—training in community organization, background in social work agencies; (7) *Special Skills in Health Education*—public speaking, writing and edition; all other skills associated with publicity work."

Channels, Vol. 1. No. 8 (Dec. 15), 1948.

Arctic Sanitation*

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STRICTLY speaking, the Arctic comprises that northern section of the world where the ground is permanently frozen, even though the top layer of soil may thaw during a brief summer period. The southern limit of this permanently frozen ground, which is called permafrost, coincides generally with the northern limit of tree growth—the tree line. However, for the purposes of this paper, the Arctic will be considered as the entire northern area where extreme cold persists throughout a major portion of the year.

Occasional low temperatures alone do not indicate arctic conditions. Records show that as low temperatures have occurred in the continental United States as in the extreme polar regions; but such low temperatures do not persist outside of the Arctic. Wind; lack of forest growth; continued very low temperatures; a short summer; and permanently frozen ground are characteristic of the Arctic.

The general problems of cold weather sanitation are not insurmountable in themselves, but the difficulties that exist are heightened by the combination of the military problems and those resulting from the hostility of the climate; the inefficiency of men working in extreme cold; the difficulty of merely sustaining life; the great distances; and the necessity for shelter. In a broad way, we may say that the problems of the Arctic are much the reverse of those we faced in the tropics. There we could not completely protect the health of small groups; in the Arctic, the difficult problem will be the supply and protection of large groups. Fortunately, there are no rats and no cockroaches in the Arctic, though there are mosquitoes and many varieties of gnats and biting insects.

Local food supplies for large bodies of men are, to all intents and purposes, nonexistent. Shelter is also practically nonexistent, and in time of storm is essential. Snow houses, or igloos, can be constructed for small groups, but not readily for an army. Travel and transportation over land are possible in the winter but not in the summer. Snowshoes or skis are necessary for winter travel by individuals. Tracked or crawler vehicles are the only kind that can move off the probably ten miles of hard surfaced roads in the far north. Sleds can be hauled by these vehicles along previously selected trails only during the winter. Fuel, food, and shelter must be taken along; they do not exist in the Arctic.

WATER SUPPLY

For 7 or 8 months each year, all lakes and rivers are covered with 6 ft. or more of ice. Small streams are frozen solid. Since the ground also is frozen, there are many problems of water supply.

Fixed supplies must be drawn from under the ice cover. This means that the pond or reservoir or other source must be of sufficient capacity to supply all needs for about 8 months, assuming (1) that the top 6 or 8 ft. will freeze,

* Presented at a Joint Session of the Inter-American Association of Sanitary Engineering and the Engineering Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

and (2) that there will be no winter inflow. Since many of the smaller arctic lakes and ponds are relatively shallow, the contours between which the water supply can be drawn may need to be determined accurately.

The amount of water required by fixed posts has not been determined. Estimates of needs range from 5 to 70 g.p.c.d. The former is no doubt inadequate for any normal conditions; design should probably aim at the latter. Water is generally quite plentiful in the Arctic. Though the rainfall is small, it cannot soak into the permanently frozen ground and so stands in pools or runs off.

Water supplies will usually come from surface sources. As yet we do not know enough about arctic ground waters to make definite statements regarding them; but there have been difficulties in sinking and maintaining wells through permafrost and in finding adequate supplies of good quality ground water.

The quality of arctic ground waters appears to be good. It is generally clear and without objectionable characteristics. We need to know more about its chlorine demand and other factors in treatment.

Pumping stations must be designed and constructed with due regard to permafrost conditions. Steam-operated pumps may be desirable as power must be generated locally with fuel, and the steam can be used to heat the water. As drawn from lakes in the winter, water temperature is about 33° F. It is normal practice to raise the temperature to 40° to 75° F. at the pump.

Distribution and storage offer many problems. Storage tanks are frequently housed to protect them from the cold. The force line from the pumping station to the storage reservoir must be insulated. Circulation is usually provided by a small bleed-off main which takes water from the storage tank and returns it to the pump sump. Fully satisfactory protective methods to prevent pipe lines from freezing have not been developed. The "utilidor" system, in which the water, sewer, and steam lines are carried in a single concrete box, is costly and has sanitary objections. Service connections also need protection. It must be remembered that all of these lines must be located in ground that is solidly frozen during much or even all of the year.

In the field, in the winter, water must be procured by melting snow or ice, preferably the latter, since much more water is obtained and more easily. To supply the necessary amount of water, melting devices and fuel must be provided; and to transport the water, insulated containers are necessary. Equipment to meet the needs of arctic field water supply is being developed and tested but, as yet, there are no standard methods or devices applicable to large scale, universal field use. Insulated water carts, simple snow melting devices, and perhaps insulated canteens may be needed.

SEWAGE AND WASTE

The need for adequate waste disposal, or even of any method of disposal in the field, aside from tossing the wastes off the trail has been questioned. This viewpoint seems wholly erroneous. It is true that the Arctic is a vast region; however there is no assurance that each and every group or party will follow a different route. In fact, the exact opposite is most likely. If the idea gets into the minds of our line officers that sanitation is unnecessary in cold areas, it will take both epidemics and time and trouble to change some of them; the rest will never change. We cannot foresee what our needs or our activities will be in the Arctic, so we should not abandon time-tested practices in sanitation, certainly not until we know more of the situation.

In fixed posts, water-carried sewage disposal is desirable, though indoor chemical toilets have been used with some degree of satisfaction. Sewers are subject to the same problem of freezing as are water mains. They should probably be insulated and a small steam line laid alongside or under the pipe. Treatment plants will probably not be needed, since main posts will probably be on deep water and disposal by dilution can be employed. If treatment should be necessary, heat will probably have to be provided and the plant structures must be carefully designed for permafrost conditions.

Field disposal of sewage is an unsolved problem as yet. Pits are difficult or impossible to dig in frozen ground. Chemical toilets of the pail type seem promising. Disposable linings for these toilets are being tried, but getting rid of the lining and contents is a problem. Perhaps a chemical can be developed which, when the contents thaw in the summer, will provide effective sterilization. Mere tossing aside of these used containers, especially when the number of men involved is considerable, is certainly open to serious question. Protecting the men from the weather while using toilet facilities is necessary, and as yet no standard practice has been developed.

INSECT CONTROL

There are many mosquitoes during the short arctic summer; also various flies and other biting insects. Mosquito breeding starts as soon as the snow begins to melt, since the eggs are laid the previous fall. While there are probably no mosquito-borne diseases in the Arctic, the problem of comfort is an important one. Area control with DDT and other compounds has been tried. In general, because insects from outside the sprayed area move in very quickly, relief is of short duration, even when a considerable area is treated. Work has been done on the application of insecticides to the snow before melting begins, and results have been promising.

FOOD, SHELTER, TRANSPORTATION, AND CLOTHING

In field service, away from fixed posts, consideration must be given to such other factors as food, shelter, transportation, and clothing. Developments in shelter and transportation may influence, to a marked extent, the details of sanitation practices. If, for instance, overland transportation is developed beyond present ideas, sanitation problems might not be too different from those that we now have in the northern part of this country. We would have weather that averages colder and stays colder longer, but there would probably not be as much snow to contend with. Distances would be greater, especially distances from our main supply bases. Forest cover, and with it local fuel and shelter resources, would be lacking. Summer travel over land would be impossible and summers would be much shorter. But with all of these differences, our own north country would form a good basis from which to start considerations of the problems of arctic sanitation.

Nutritional Reconditioning of Children*

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TO extend knowledge of the nutritional status of Michigan children, the Research Laboratory of the Children's Fund of Michigan studied 392 boys and girls, from 3 to 18 years old, while they were being supervised by five widely separated rural and urban child caring agencies in the state.[1-8] The investigation was made possible by the development of accurate microtechniques—methods using small samples—for chemical analyses of blood. These procedures make practical studies of groups of individuals while they are living in their usual environments. The ease with which the small blood samples are collected, with minimal requirements for equipment and personnel at point of collection and the relative simplicity of shipping samples to a central laboratory for analysis make the procedures specially suitable to obtaining information of value in the public health field.

Finger punctures provided fasting blood samples approximately 0.3 ml. in volume, an amount adequate for determination of hemoglobin, serum protein, serum alkaline phosphatase, vitamin A, carotene, and vitamin C by the Lowry and Bessey micromethods.[2] The results of the studies of children attending Bay Cliff Health Camp located on the shore of Lake Superior in the Upper Peninsula of Michigan demonstrate the possibilities of nutritional reconditioning.

During six weeks each summer the Bay Cliff Health Camp provides for underprivileged children diets superior in quantity and quality, excellent environment, and activities planned for their enjoyment by an experienced staff. The children in the camp had: (1) cardiac involvement, (2) speech and hearing defects; (3) orthopedic ailments principally residual from poliomyelitis, but including a few cases of spasticity and other debilitating conditions; and (4) general malnutrition or undernutrition common to underprivileged children. Many of the children were known to have existed for years in an environment that did not provide even the minimal amounts of nutriments necessary for satisfactory nutritional status. With some, chronic misfeeding and underfeeding dated from birth, and their bodies may have become conditioned to inadequate diets. Others had deficiencies secondary to physical and emotional handicaps which possibly interfered with the ingestion, absorption, or utilization of essential nutriments.

Weight gain is often taken as the criterion of satisfactory growth in children. Of the 101 children studied at Bay Cliff Health Camp 73 had not attained the weights expected for their respective ages, according to the standards of Meredith[9] and Boynton,[10] when they were admitted to camp. Of these, 53 weighed 80–100 per cent of their standards, 15 weighed 70–80 per cent of their standards, and 5 weighed less than 70 per cent of the normal expectation. During the camp period average body weight gains ranged from 5 to

* Presented at a Joint Session of the American School Health Association and the Food and Nutrition Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

1,191 gm. per week. For the majority of the children in the group weight gain alone would be indicative of the beneficial effects of the camp experience. However, chemical methods make possible more objective determinations of physiological status, coincident with clinical examinations and evaluation of the results of a changed environment.

Serum alkaline phosphatase—Since interest developed in serum alkaline phosphatase as an indicator of rickets, it has continually become more evident that many factors are operative in determining the level of the enzyme in blood serum. Also, serum alkaline phosphatase values can be interpreted only with recognition of the numerous physiological processes which influence its concentration in the blood stream. In recent surveys of the nutritional status of population groups,[11, 12] the measurement has been employed, primarily, for detection of vitamin D deficiency.

The children at Bay Cliff Health Camp did not show any changes in serum alkaline phosphatase levels during the six weeks of improved environmental and dietary regimen, nor was there any indication that any of the levels were abnormal when age and sex were considered.[8]

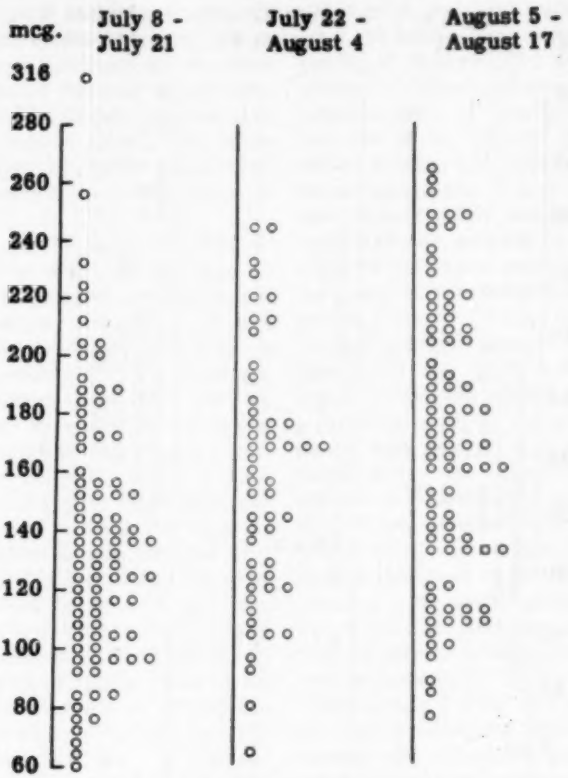
Serum vitamin A and carotenoids—An interpretation of data on serum concentrations of vitamin A and carotenoids as they relate to nutritional status is complicated. It is known that blood carotenoids drop rapidly over a period of one week when a carotene-free and vitamin A-free diet is given,[13–15] but many months of a deficient diet are required to depress appreciably the serum vitamin A level. Malnourishment is frequently associated with low serum vitamin A levels,[16, 17] and Yarbrough and Dann[18] have demonstrated lower average vitamin A levels in the blood of low income groups than among high income groups. On the other hand, not all persons showing commonly accepted clinical signs of vitamin A deficiency exhibit lowered blood levels of this substance, and dark adaptation measurements may show poor correlation to blood levels of vitamin A.[19, 20]

The vitamin A problem is complicated by the fact that certain carotenoid pigments in food are converted to vitamin A in the body and serve as sources of additional amounts of this indispensable material. The human body has the capacity of storing vitamin A, particularly in the liver. For this reason, restricted intake of vitamin A will not produce vitamin A deficiency as rapidly as ascorbic acid limitation will cause scurvy, and blood levels of vitamin A will not respond as rapidly to lowered dietary intake of the vitamin as do the blood levels of vitamin C when intake is restricted.

Dietary supplies of vitamin A may vary significantly with season. Butter —one of the few rich natural sources of preformed vitamin A in a diet—has been shown[21] to have significantly lower vitamin A potency in the winter months when green pasturage is not available. More important than vitamin A itself in satisfying needs for this nutriment are the carotenoid pigments of green and yellow vegetables and fruits. Moore[22] has pointed out that these, being the less expensive sources of vitamin A, are the most significant ones in the diet. It is difficult to assess the vitamin A value which the mixed carotenes of any diet may contribute. Of the several carotenes, some are well and extensively converted into vitamin A when they enter the body; others are but poorly converted, if at all.[23] Recently, Koehn[24] obtained results with rats which support the theory of Karrer that the conversion of beta-carotene to vitamin A, *in vivo*, is by fission of the molecule to yield two molecules of vitamin A.

The blood serum levels of carotenoids for the children at Bay Cliff Health

FIGURE 1



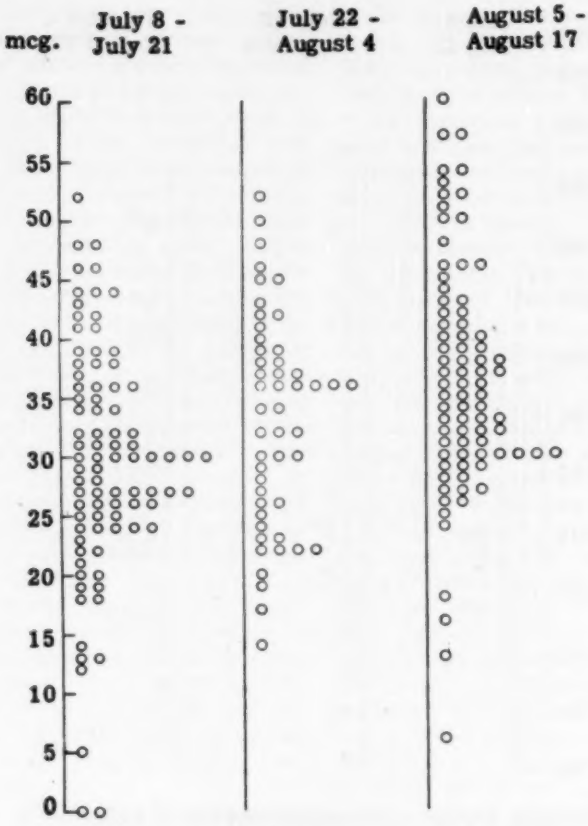
Fasting serum carotenoids levels of children at Bay Cliff Health Camp

Camp are shown in Figure 1. The values are distributed among three intervals: those from blood collected during the first and second weeks of camp, those collected during the third and fourth weeks, and those after the children had been in camp for four weeks.

That blood serum levels of carotenoids may rise fairly rapidly under favorable circumstances is demonstrated by the marked increases shown by the children during the six weeks in which their environment and diet were excellent and included plentiful amounts of milk, fruit, and fresh green and yellow vegetables. The average level of serum carotenoids early in the camp period was 137 μg., and at the end, 168 μg. per 100 ml. Initially, only 17 per cent of the group had serum carotenoid levels above 160 μg. per 100 ml., but after four to five weeks 55 per cent had risen to that level. The ample levels of serum carotenoids imply that this material was available in the diet in substantial amounts.

Values for vitamin A are plotted similarly in Figure 2. Among the children, 42 per cent had initial levels of serum vitamin A below 30 micrograms

FIGURE 2



Fasting serum vitamin A levels of children a Bay Cliff Health Camp

per 100 ml., but only 27 per cent of the final values were at or below this level. The greatest increases in blood vitamin A occurred in the children whose initial levels were lowest, while those subjects with good initial levels of vitamin A (above 30 μg.) per 100 ml. showed smaller increases and in some instances a reduction. The shift of blood vitamin A levels, while not as great, was similar to the change in carotenoid values.

Hemoglobin—Of all the biochemical measures available for assessing nutritional condition, hemoglobin concentration in the blood has been used most frequently. The occurrence of iron as a component of the hemoglobin molecule and the occurrence of iron-deficient anemias when iron and copper intakes are restricted has led to the use of hemoglobin determinations to assess adequacy of iron allowance. However, many dietary factors, such as other minerals, amino acids, and vitamins, are required simultaneously to maintain normal function of the hematopoietic

system.[7] Thus, hemoglobin concentration is a valuable indicator of adequate nutrition with respect to many, rather than to a single nutriment and is a most useful method of assessing dietary adequacy of groups, despite the fact that individual cases of anemia may often be the result of some pathological process unrelated to a deficiency in intake.

Study of healthy individuals has revealed that a wide normal range of hemoglobin levels exists and that establishing a definite level below which a value can be considered pathologic is virtually impossible.[25-29] Various standards of normalcy have been used by workers who have determined hemoglobin in assessing nutritional state. Guest's study of 600 children[30] indicates that 12.5 gm. of hemoglobin per 100 ml. of blood is a desirable level for children eighteen months old, and from all reports[31-33] it seems that for older children, values below 12.5 gm. may justifiably be considered unsatisfactory.

The distribution of the children according to level of fasting blood hemoglobin showed averages for all children ranging from 11.0 to 17.5 gm. per 100 ml., averaging 13.4 gm. A few unusually high values were found in children who had cardiac involvement. No serious degree of anemia existed in the subjects. However, 32 per cent fell below 13.0 gm. per 100 ml., and 20 per cent of the subjects had less than 12.5 gm. of hemoglobin per 100 ml. of blood. Only 3 per cent were below 12.0 gm. per 100 ml.

The distribution of values was consistent with the observations of Mugrage and Andresen,[28, 34] who found a similar range in children from birth to 21 years and of Milam and Muench[35] in studies of North Carolina populations, but in this investigation there were fewer cases of low hemoglobin than the latter workers observed. Ross and Summerfeldt[36] reported somewhat lower average values for children, in a rural orphanage (10.4 gm.), in a city institution (11.8 gm.), of middle class (12.0 gm.), and privileged children (13.0 gm.). In the absence of other evidence, the slightly reduced levels of hemoglobin existing in a few of our subjects cannot be assumed to have had their origin in dietary inadequacies. Thus, the children had representative hemoglobin levels upon entrance and did not show the effect of nutritional conditioning which was found in their levels of fasting blood serum vitamin C[4] and vitamin A.[6] Perhaps a longer exposure to improved diet would also have demonstrated a rise in hemoglobin levels.

A special study of the iron intake of two 8 and two 12 year old children demonstrated the importance of the method of determination in the evaluation of hemoglobin data. Analyses of foods exactly representing those eaten showed intakes of 15 to 21 mg. of iron per day. However, calculation with values from the literature indicated intakes of only 10 to 15 mg. per day. The fasting hemoglobin levels of the four children ranged from 12.7 to 14.8 gm. per 100 ml. of blood. This discrepancy between the calculated and analyzed values for the iron content of foods may be attributable to a location in an iron ore region. The iron content of food grown in such soil might be several times that of foods grown in another area. The absence of low hemoglobin values for the children at Bay Cliff Health Camp may well have been the result of geographic environment which assured adequate iron intakes.

Serum protein—The use of total serum protein concentration measurements in surveys of populations, with and without fractionation into component albumin and globulins, has been widespread.[12, 37-39] The majority of workers agree with the limits of normal blood serum protein concentration set by Bruckman, D'Esopo, and Peters,[40]

6.5 to 8.4 gm. per 100 ml., and that concentrations of serum protein below 6.0 gm. per 100 ml., except in infants, are indicative of pathology.

For the children who attended Bay Cliff Health Camp the means were similar for the initial and final determinations, but seven individuals showed concentrations below 6.6 gm. initially, whereas only two showed less than that concentration of serum protein near the end of the camp period.

Serum vitamin C—Serum vitamin C levels tend to reflect recent dietary intake [41-43]; therefore, by taking samples following night fasts of 12 hours or more, effects of recent intakes of vitamin C-rich foods are minimized, and the levels observed become a more valid representation of nutritional condition. Although doubt may exist when the vitamin C content of a single blood sample is taken as the criterion of vitamin C saturation in an individual, the overall picture obtained in a survey is of greater reliability in revealing the nutritional status of a large group.

In using blood levels of vitamins as indices of nutritional status, the greatest difficulties lie in our inadequate knowledge of the concentrations which define the zones of nutritional adequacy or inadequacy. However, a great amount of research has provided more definite knowledge of the desirable blood levels of this constituent than is available for any of the other vitamins. Gyorgy [44] summarized current opinion in stating that " the normal level for ascorbic acid in human blood plasma is 0.7 mg. per 100 ml." He reported that lower blood levels may be interpreted as indicative of insufficient intake or increased body demand, as in infection, an actual deficiency, or tissue under-saturation. Youmans [45] states that normal concentrations of vitamin C range from 0.7 mg. per 100 ml. of serum upward, with 1.2 mg. per 100 ml. or better being commonly observed in well nourished subjects. He considers values in the range of 0.4 to 0.7 mg. per 100 ml. as constituting the borderline region and values below 0.5 or 0.4 mg. to be definitely deficient. Similar opinions are expressed by Farmer [46] and others,[12, 29] although Farmer warned that the finding of a level of 0.0 to 0.4 mg. per 100 ml. need not be interpreted in any individual as being indicative of severe deficiency unless the low level is found in repeated examinations.

A striking illustration of the effect of dietary pattern on blood serum vitamin C levels was found in a child caring agency where children live in groups of nine to twelve in individual cottages. Evening meals are served in a common dining room but the house mother in each cottage is responsible for the planning and preparation of two meals each day and variations in dietary pattern might be expected.

In cottage A, breakfast menus generally included canned orange concentrate and the luncheon menu often provided fruit salads. In contrast, the children in cottage B were served orange concentrate infrequently because the house mother, who had no training in

FIGURE 3

Fasting Blood Serum Vitamin C Levels for Two Groups of 10 Children Each Living in an Individual Cottage, on Three Successive Days

Values in milligrams per 100 milliliters

	Cottage A		Cottage B	
Day	*Mean*	*Range*	*Mean*	*Range*
1	1.13	0.92–1.33	0.12	0.02–0.28
2	1.06	0.54–1.32	0.17	0.00–0.34
3	1.05	0.66–1.31	0.12	0.05–0.23

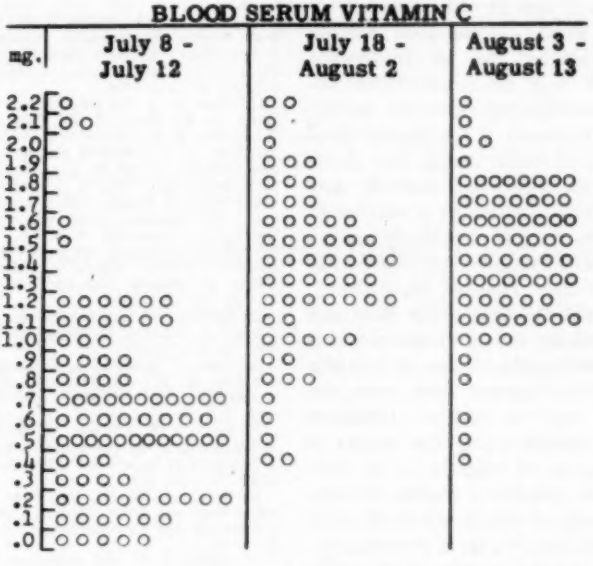
nutrition or dietetics, believed high intakes of milk were all-important for children and encouraged consumption of it in preference to citrus fruit or juice.

Blood samples were collected three successive days from each of the 10 children in each cottage. The mean level of blood serum vitamin C (Figure 3) for each day was considerably higher for the occupants of cottage A than for those in cottage B. The ranges for the children in cottage A also were much higher than those for the children in cottage B. The values for vitamin C in the serum of the group of children in cottage B might be questioned as representative of well nourished children.

Figure 4 portrays the changes in fasting blood serum vitamin C levels for those children from whom samples were obtained two or more times at Bay Cliff Health Camp. The initial levels show that the majority of the children (59 of 88) had less than 0.8 mg. of vitamin C per 100 ml. of blood serum; values for 27 were indicative of deficiency (0.0 to 0.5 mg. per 100 ml.); and values for 32 indicated a prescorbutic state (0.5 to 0.8 mg. per 100 ml.). Only 21 had unquestionable levels, ranging from 1.0 to 2.3 mg. vitamin C per 100 ml. of serum, and only 29 had concentrations of vitamin C considered adequate to sustain health and provide a margin of safety for rapidly growing children.[4] Since the blood samples for the initial determinations were obtained after the children had been in camp for several days and the response to increased intakes of vitamin C is known to be extremely rapid, it is likely that many of the children had even lower levels of the vitamin in their blood serum prior to admission to the camp.

The vitamin C studies in the middle and final weeks of camp provided a striking example of progressive improve-

FIGURE 4



Fasting serum vitamin C levels of children at Bay Cliff Health Camp

ment and stabilization in the nutritional status of children in response to improved dietary environment. After three to four weeks at camp (Figure 4), determinations for 61 children showed none with a serum vitamin C value below 0.4 mg.; 51 with values of 1.0 mg. or more; and 10 below 1.0 mg., of which only 5 were below 0.8 mg. per 100 ml. Determinations during the final two weeks at camp showed 64 children to have levels of blood serum vitamin C at or above 1.0 mg. per 100 ml.; 2 with levels of 0.8 and 0.9 mg.; and 3 with 0.4 to 0.6 mg. per 100 ml.

Weight gain is not as reliable a criterion of satisfactory growth conditions for the growth and development of children as is a thorough evaluation of nutritional status, for even with food intake sufficient to allay hunger and produce weight gain, the diet may not contain essential substances in amounts sufficient to maintain in the blood and body tissues the levels requisite to health, much less provide reserves for periods of stress. If the body has become conditioned to an inadequate diet, weeks may be required for nutritional conditioning, with the accompanying attainment of the physiological adjustment of body tissues and fluids necessary for nutritional stability and normal growth. Although a number of the children in the present study arrived at camp with supplies of commercial vitamin products (unused while there), the data indicate that either they had not been taking the synthetic products for sufficient lengths of time or that the substitutes for proper food were not adequate. For the children studied at Bay Cliff Health Camp the results of determinations of vitamin C in their blood serum provide a notable illustration of beneficial physiological effects of proper food and healthful environment, as well as of the rapidity with which nutritional conditioning may be achieved and nutritional stability attained.

REFERENCES

1. Macy, I. G. Nutritional Status of Children. 1. Expanded Opportunities for Dietitians. *J. Am. Dietet. A.*, 24:81, 1948.

2. Moyer, E. Z., Beach, E. F., Robinson, A., Coryell, M. N., Miller, S., Roderuck, C., Lesher, M., and Macy, I. G. Nutritional Status of Children. 2. The Organization of a Survey of Child-Caring Agencies. *J. Am. Dietet. A.*, 24:85, 1948.

3. Moyer, E. Z., Harrison, A. P., Lesher, M., and Miller, N. M. Nutritional Status of Children. 3. Blood Serum Vitamin C. *J. Am. Dietet. A.*, 24:199, 1948.

4. Cooperstock, M., Morse, E., Moyer, E. Z., and Macy, I. G. Nutritional Status of Children. 4. Nutritional Conditing in a Health Camp. *J. Am. Dietet. A.*, 24:205, 1948.

5. Beach, E. F., Harrison, A. P., Lesher, M., Kaucher, M., Roderuck, C., Lameck, W., and Moyer, E. Z. Nutritional Status of Children. 5. Blood Serum Protein. *J. Am. Dietet. A.*, 24:405, 1948.

6. Robinson, A., Lesher, M., Harrison, A. P., Moyer, E. Z., Gresock, M. C., and Saunders, C. Nutritional Status of Children. 6. Blood Serum Vitamin A and Carotenoids. *J. Am. Dietet. A.*, 24:410, 1948.

7. Kaucher, M., Moyer, E. Z., Harrison, A. P., Thomas, R. U., Rutledge, M. M., Lameck, W., and Beach, E. F. Nutritional Status of Children. 7. Hemoglobin. *J. Am. Dietet. A.*, 24:496, 1948.

8. Harrison, A. P., Roderuck, C., Lesher, M., Kaucher, M., Moyer, E. Z., Lameck, W., and Beach, E. F. Nutritional Status of Children. 8. Blood Serum Alkaline Phosphatase. *J. Am. Dietet. A.*, 24:503, 1948.

9. Meredith, H. V. The Rhythm of Physical Growth. Univ. of Iowa studies: *Studies in Child Welfare*, 11, No. 3.

10. Boynton, B. The Physical Growth of Girls. Univ. of Iowa studies: *Studies in Child Welfare*, 12, No. 4.

11. Youmans, J. B., Patton, E. W., Sutton, W. R., Kern, R., and Steinkamp, R. Surveys of Nutrition of Populations. 4. The Vitamin D and Calcium Nutrition of a Rural Population in Middle Tennessee. *A.J.P.H.*, 34:1049, 1944.

12. Adamson, J. D., Jolliffe, N., Kruse, H. D., Lowry, O. H., Moore, P. E., Platt, B. S., Sebrell, W. H., Tice, J. W., Tisdall, F. F., Wilder, R. M., and Zamecnik, P. C. Medical Survey of Nutrition in Newfoundland. *Canad. M. A. J.*, 52:227, 1945.

13. Anonymous. Vitamin A Deficiency and the Requirements of Human Adults; Report of the Vitamin A Sub-Committee of the Accessory Food Factors Committee. *Nature*, 156:11, 1945.

14. Wald, G., Brouha, L., and Johnson, R. E. Experimental Human Vitamin A Deficiency and the Ability to Perform Muscular Exercise. *Am. J. Physiol.*, 137:551, 1942.

15. Brenner, S., and Roberts, L. J. Effects of Vitamin A Depletion in Young Adults. *Arch. Int. Med.*, 71:474, 1943.

16. May, C. D., Blackfan, K. D., McCreary, J. F., and Allen, F. H. Clinical Studies of Vitamin A in Infants and in Children. *Am. J. Dis. Child.*, 59:1167, 1940.

17. Lewis, J. M., Bodansky, O., and Haig, C. Level of Vitamin A in the Blood and an Index of Vitamin A Deficiency in Infants and in Children. *Am. J. Dis. Child.*, 62:1129, 1941.

18. Yarbrough, M. E., and Dann, W. J. Dark Adaptometer and Blood Vitamin A Measurements in a North Carolina Nutrition Survey. *J. Nutrition*, 22: 597, 1941.

19. deHaas, J. H., and Meulemans, O. Vitamin A and Carotenoids in Blood. Deficiencies in Children Suffering from Xerophthalmia. *Lancet*, 1:1110, 1938.

20. Steininger, G., Roberts, L. J., and Brenner, S. Vitamin A in the Blood of Normal Adults. The

Effect of a Depletion Diet on Blood Values and Biophotometer Readings. *J.A.M.A.*, 113:2381, 1939.

21. Ellenberger, H. A., Guerrant, N. B., and Fardiz, O. B. Seasonal Variations in the Vitamin A and the Carotene Content of Retail Butters. *J. Nutrition*, 33:39, 1947.

22. Moore, T. Vitamin A. *Post-Grad. M. J.*, 17:52, 1941.

23. Heilbron, I. M., Jones, W. E., and Bacharach, A. L. The Chemistry and Physiology of Vitamin A. In: *Vitamins and Hormones*. Academic Press, Inc., New York, 2:155, 1944.

24. Koehn, C. J. Relative Biological Activity of Beta-Carotene and Vitamin A. *Arch. Biochem.*, 17: 337, 1948.

25. Wintrobe, M. M. The Erythrocyte in Man. *Medicine*, 9:195, 1930.

26. Osgood, E. E. Normal Hematologic Standards. *Arch. Int. Med.*, 56:849, 1935.

27. Osgood, E. E., and Baker, R. L. Erythrocyte, Hemoglobin, Cell Volume and Color, Volume and Saturation Index Standards for Normal Children of School Age. *Am. J. Dis. Child.*, 50:343, 1935.

28. Mugrage, E. R., and Andresen, M. I. Values for Red Blood Cells of Average Infants and Children. *Am. J. Dis. Child.*, 51:775, 1936.

29. Borsook, H., Dubnoff, J. W., Keighley, G., and Wiehl, D. G. Nutritional Status of Aircraft Workers in Southern California. 4. Effects of Vitamin Supplementation on Clinical, Instrumental, and Laboratory Findings, and Symptoms. *Milbank Mem. Fund Quart.*, 24:99, 1946.

30. Guest, G. M. Hematologic Methods in Detecting Nutritional Anemia. In Nutrition: The Newer Diagnostic Methods. Round Table on Nutrition and Public Health. *Proc. 17th Annual Conference of the Milbank Mem. Fund*. Mar. 29–31, 1938.

31. Mack, P. B., Smith, J. M., Logan, C. H., and O'Brien, A. T. Hemoglobin Values in Pennsylvania Mass Studies in Human Nutrition. *Milbank Mem. Fund Quart.*, 19:282, 1941.

32. Abbott, O. D., Townsend, R. O., and Ahmann, C. F. Hemoglobin Values for 2205 Rural School Children in Florida. *Am. J. Dis. Child.*, 69:346, 1945.

33. Metcoff, J., Goldsmith, G. A., McQueeney, J. H., Dove, R. F., McDevitt, E., Dove, M. A., and Stare, F. J. Nutritional Survey in Norris Point, Newfoundland. *J. Lab. & Clin. Med.*, 30:475, 1945.

34. Mugrage, E. R., and Andresen, M. I. Red Blood Cell Values in Adolescence. *Am. J. Dis. Child.*, 56:997, 1938.

35. Milam, D. F., and Muench, H. Hemoglobin Levels in Specific Race, Age, and Sex Groups of a Normal North Carolina Population. *J. Lab. & Clin. Med.*, 31:878, 1946.

36. Ross, J. R., and Summerfeldt, P. Haemoglobin of Normal Children and Certain Factors Influencing Its Formation. *Canad. M. A. J.*, 34:155, 1936.

37. Youmans, J. B. Nutritional Edema. *Internat. Clin.*, 4:120, 1936.

38. Youmans, J. B., Patton, E. W., Sutton, W. R., Kern, R., and Steinkamp, R. Surveys of the Nutrition of Populations. 2. The Protein Nutrition of a Rural Population in Middle Tennessee. *A.J.P.H.*, 33: 955, 1943.

39. Milam, D. F. Plasma Protein Levels in Normal Individuals. *J. Lab. & Clin. Med.*, 31:285, 1946.

40. Bruckman, F. S., D'Esopo, L. M., and Peters, J. P. The Plasma Proteins in Relation to Blood Hydration. 4. Malnutrition and Serum Proteins. *J. Clin. Investigation*, 8:577, 1930.

41. Bryan, A. H., Turner, D. F., Huenemann, R. L., and Lotwin, G. Relation Between Plasma and Dietary Ascorbic Acid. *Am. J. M. Sc.*, 202:77, 1941.

42. Todhunter, E. N. The Evaluation of Nutritional Status. *J. Am. Dietet. A.*, 18:79, 1942.

43. Lowry, O. H., Bessey, O. A., Brock, M. J., and Lopez, J. A. The Interrelationship of Dietary, Serum, White Blood Cell, and Total Body Ascorbic Acid. *J. Biol. Chem.*, 166:111, 1946.

44. Gyorgy, P. The Water-Soluble Vitamins. *Ann. Rev. Biochem.*, 11:309, 1942.

45. Youmans, J. B. *Nutritional Deficiencies*. J. B. Lippincott Co. Philadelphia, 1941.

46. Farmer, C. J. Some Aspects of Vitamin C Metabolism. *Federation Proc.*, 3:179, 1944.

American Cancer Society Raises Record Sum

According to a recent report of the American Cancer Society, New York City, the proceeds of the 1948 campaign stand at $13,087,178, which is the largest sum ever raised by the American Cancer Society for its program, which includes educational campaigns for early recognition, the development of treatment facilities, and research.

Welfare Measures and Their Effect upon the Family*

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MY experience in welfare work goes back to the first decade of the century. In New York City at that time there was little or no welfare work for families in their own homes at public tax-supported expense. There was no relief for families in their homes, except a trickle of relief afforded by voluntary agencies. There was no workmen's compensation to prevent the breakdown of family life through accidents. There was no unemployment insurance and no old age security through so-called insurance.

The outstanding fact was that families would break up. Children were herded into institutions for dependent children. The aged without means of support went to almshouses and the chronic sick to chronic hospitals. Most families in distress economically through death, illness, accident, protracted unemployment, or other family economic distress, struggled along preferring to remain in distress even at the expense of increasing the number of deaths, the volume of illness, undernourishment, and gradual deterioration, rather than accept proffered assistance of breaking up the family through institutionalizing all but the able-bodied members capable of self-support.

The results were disastrous. Confronted with this threat to the very foundations of family and social life, social morality and social conscience awakened and began to attack the problem. First came workmen's compensation. This was followed during the next two decades by legislation providing allowances for children in widows' families, by old age allowances and the gradual extension of other forms of relief to the blind, the sick, etc.

Then came the depression of the third decade, with its resultant breaking down of the traditional restraints of the old poor law and the opening of the gates to implementing modern concepts of relief. It went further and moved toward the prevention of poverty through social security provisions for unemployment and old age. Meantime the social awakening was leading to more adequate compensation for work performed and the great improvement that this brought to family life through an improved standard of living.

All of this meant an extraordinary change in social life. No longer do we see family life in any significant amount broken up through the disaster of death, sickness, accident, unemployment, and other misfortunes to the economic stability of family life. A very considerable percentage of families have been removed completely from that marginal group which were plunged into poverty as soon as adverse social and economic circumstances overtook them. Social services in a more limited sense

* Discussion presented at the Round Table on The Family as the Unit of Health, in connection with the Twenty-fifth Annual Conference of the Milbank Memorial Fund, November 17–18, 1948. The proceedings of the Round Table will be published in a single volume by the Milbank Memorial Fund.

of the so-called public and voluntary welfare agencies are freed from giving attention to this large group of families. This has made possible a much more adequate service to the more limited number of families coming to them for care. Social security approaches to these problems, supplemented by the combination of voluntary and publicly supported social services, have not only made the break up of families unnecessary, but have in addition reduced the volume of deaths, sickness, and deterioration in the physical mental, and moral life of families. Children in disadvantaged families are now better cared for, better fed, better educated, have less sickness, and fewer of them die.

We are now at the point where we are raising the question of where we should go from here. We are observing with much interest the experience of our neighbor, Canada, in granting allowances to children of specified ages irrespective of the economic status of the family, thus helping to tide over that most difficult period in the economics of family life when there are additional members in the family to be supported from the earnings of the breadwinner.

We are observing the interesting experiment in Manitoba and Saskatchewan, Canada, of extending home and hospital medical care to families through special and general revenues of the government without direct charges to them. We are students of the accumulating experience of Great Britain with their National Health Service Act which went into effect on July 5, 1948. We are fortunate in having this experience and that of other countries which have extended security and welfare provisions further than we have in New York to draw upon before making further modifications in our own program.

It will be seen from this silhouette of trends in the last few decades that welfare measures have modified social life and the functions of welfare services enormously. Social welfare and public health have become politically important. All parties and all political candidates in their platforms and definite programs make reference to further improvements in welfare and health services. Good welfare and health programs have become good politics. And the impact of this upon family life has been enormous.

These significant developments leave us with the question of how far and how rapidly is it wise to go in extending present welfare services. This is now the subject of active debate. How far can the State go in extending welfare work and the so-called security to all families without weakening human efforts to better themselves? How far is it possible to go before diminishing returns appear in national productivity and national income and the leveling off or reduction of the average standard of living? These are some of the unanswered questions which confront us as we study next possible steps in the development of welfare work for families.

A Pattern of Local Services in the Saskatchewan Health Program*

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IT is my privelege to give you a brief account of a local unit of health administration in Saskatchewan, a unit with an advanced and in many respects unique program—the Swift Current Health Region. There is no other unit of its kind in North America, in which all residents are eligible, on a tax-supported basis, for basic public health services, virtually complete medical services, hospitalization, and dental care for children. No one would claim that this program is ideal in organizational structure or in services provided, but it must command our attention as a courageous pioneering effort with spreading influence.

As an outgrowth of Dr. Henry E. Sigerist's health survey in 1944,[1] the populated southern half of Saskatchewan, with a population of 840,000, has been tentatively divided into twelve so-called health regions as a basis for the coördinated development of essential community health services. Of these, six now have active public health programs and one of the six, the Swift Current Region, has extended its services into the medical care field. The health region is built on the concept of the natural trading area surrounding a major trading center. It is composed typically of from three to five smaller trading areas, each with its principal center, and these become public health districts within the health region. As might be expected, the definition of district and regional boundaries has been largely the outgrowth of intensive hospital planning.

Doubtless the lack of county organization in Western Canada has facilitated the establishment of logical, geographic units of health administration. But the merging of a large number of local municipalities into one health region presents its own problems. In addition to its cities, towns, and villages, Saskatchewan has vast agricultural districts divided into more than 300 self-governing rural municipalities, recognized in health circles for 30 years for their "municipal doctor" plans. The health region draws into one channel the remarkable drive which has characterized organized farming areas in the province over the years as they have fought against odds to obtain medical services.

The Swift Current Region is in the southwest corner of Saskatchewan, bounded by Alberta to the west and Montana to the south. It includes one city, Swift Current, with a population of 7,200, 6 towns, 32 villages, and 38 rural municipalities. The region's 55,000 people are spread out over an area little smaller than the combined area of Massachusetts and Connecticut. There are less than 5 persons per square mile, in contrast to 546 in Massachusetts. In this, low-moisture and chron-

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

ically poor-crop, wheat farming and ranching territory, a complete health program faces odds which accentuate the significance of its success.

The visitor to the modern Regional Health Center in Swift Current finds not only clinic facilities and the offices of the Medical Health Officer and his senior staff, but also a beehive of some fifteen clerks and stenographers responsible to the full-time Secretary-Treasurer of the Regional Health Board. At this stage there is not complete integration of the public health and medical care programs administered by these two staffs, but as they work side by side, more effective coördination is constantly being achieved.

The program of more or less traditional public health services represents largely a decentralization of what remain primarily provincial functions. The Health Officer and his staff are employees of the Provincial Department of Public Health. Yet, one-third of the public health budget comes from the Region and increasing authorities are being vested in the Regional Health Board.

So far as various medical services are concerned, the Regional Board has almost complete freedom of action and responsibility, subject to the approval of the Provincial Government. The members of the Board look to the Health Officer for advice, but they administer the medical care program through their own Secretary-Treasurer and staff.

The Regional Board, which is a board of health for public health purposes and a "board of directors" for the medical program, is a powerful group of twelve community leaders. They are elected by District Health Councils in each of the four public health districts, on the basis of one Board member for roughly 5,000 population. Each district health council is composed of representatives of every municipal council in the district. This democratic structure seems effective in providing a two-way channel from the local municipal council to the Regional Health Board whereby local views may be considered at top level and, in turn, Board actions may be interpreted locally. These processes are facilitated by the holding of District Health Council meetings throughout the year, with Board members in attendance, and by the annual joint meeting of all ninety-four members of the four District Health Councils, together known as the Regional Health Council.

Basic public health work has become well established since it was placed on a full-time basis in February, 1946. Despite personnel shortages, an active program is in full swing. Serving the population of 55,000 under the direction of the Health Officer, there are 9 public health nurses, 3 sanitary officers, a health educator, and a regional registrar of vital statistics. The nurses and sanitary officers work out from three district offices as well as the Regional Health Center in the main district. It is hoped that two of the district offices will soon be superseded by District Health Centers located in the hospitals in the two towns concerned. This would foster the day-to-day coördination of diagnostic and therapeutic services and the activities of public health personnel in such field as communicable disease control, maternal and child health, mental hygiene, and health education.

In large units of health administration, covering vast stretches of sparsely settled prairie, health officers are primarily planners and administrators. Their role is based on the premise that the family doctor should become responsible for personal preventive services. Even when mass measures are called for, as in well baby clinics or in school health work, provision is made for employing local physicians to provide the service.

When the voters in southwestern Sas-

katchewan rolled up a large majority for the establishment of the Health Region, they were voting not only to obtain full-time public health services, but to tax themselves to provide medical and hospital services. July 1, 1946, was the "appointed day" and the medical program started on schedule. The Swift Current Board would be scornful of anyone listing the many reasons why compulsory health insurance cannot or should not be adopted. Wanting health insurance, they organized it and set it in motion, and they like what they have.

Swift Current's program of health services has gone through certain evolutionary changes during its 28 months of operation, but time permits only a description of the program as it operates today.

Every resident of the region is eligible for services, provided he is not in an exempt class, such as old age and blind pensioners, mothers' allowance recipients, and certain other public assistance recipients already entitled to medical care through a separate provincial program. Also exempt, are various Dominion Government beneficiaries. Indigent families for whom local municipalities are responsible participate fully in the regional program, their tax being paid by the municipality of residence. The region's program covers some 51,000 of the entire population of 55,000.

The principal service is medical care, including all medical, surgical, and obstetrical services on a free choice basis within the region, and by referral to specialists outside the region. The physicians may impose mileage charges and patients referred outside the region are occasionally charged the difference between the fee paid by the region and the specialist's fee. Otherwise, there are practically no restrictions in medical benefits.

The Regional Board employs a full-time radiologist to serve the whole region. While most of his work is done at the Swift Current Union Hospital, he makes periodic visits to the principal district hospitals. The Board is now supporting a plan to engage a pathologist to serve their own and two adjoining regions.

Perhaps the most popular service is the dental care program for children under 16. Four full-time dentists with assistants, using both fixed and mobile clinics, are reaching thousands of children who had seldom if ever had proper dental care.

Another benefit is hospital outpatient service, including diagnostic procedures and physiotherapy. The region provided inpatient hospitalization from July through December, 1946, but was able to drop this benefit with inauguration of the province-wide, tax-supported hospitalization program on January 1, 1947.

The medical care program is financed by a personal tax, a land tax, and provincial grants. The compulsory personal tax is $15 a year for the first member of a family, $24 for two, $30 for three, and $35 for four or more. In addition, all property owners pay a 2.2 mill land tax which produces one-fourth of the revenue raised by the region. Provincial grants which yield the remaining 9 per cent of total revenue cover half the cost of the three special services—radiological, dental, and outpatient services.

The 1949 budget totals $695,000, or about $13.65 per capita, not including $1.20 per capita for public health. Of the $13.65, about $10 per capita is for physicians' services, including referrals outside the region.

Physicians within the region are paid on a limited fee-for-service basis from an annual fund of $420,000. In 1947, before this limitation on expenditures was agreed upon, the region's physicians received on a discounted fee basis, a

total of $410,850. The average gross income per physician was $1,061 per month, or--on an annual basis—$12,739, not counting other sources of income.

A review of the services provided reveals that the office call rate is low, the home call rate is very low, and the hospital case and day rates are quite high. Thus, preliminary data reveal an office call rate for 1947 of about 1.5 per person, a home call rate of 0.2, and a hospital call rate of 0.8, or a total of 2.5 physicians' calls per person annually. This is very close to the 1942–1944 rate of 2.6 calls recorded in the tax-assisted "Experimental Health Program" sponsored by the U. S. Department of Agriculture in seven rural counties, but it falls considerably short of what we expect from group practice prepayment plans in urban communities.[2] Hospitalization data are not yet available by health region, but in 1947 under the Saskatchewan Hospital Services Plan, there were 156 hospital discharges per 1,000 throughout the province[3] compared to an average Blue Cross admission rate of 122 the same year.[4] The Saskatchewan program furnished 1,565 days of care per 1,000, not counting undischarged cases, compared to a Blue Cross average of 969 days per 1,000.

A high volume of hospital care compared to other services is characteristic of sparsely settled territory when the number of doctors is low and the supply of hospital beds is reasonably adequate. Since the Swift Current program started, the number of physicians in the region has jumped from 19 to 33, but there is still a ratio of one physician to 1,650 people. On the other hand, five new hospitals have opened their doors in the last three years, giving a region-wide ratio of 5.2 beds per 1,000 by rated capacity in the fourteen hospitals within the region. The whole nature of medical practice on the prairies has changed in the last twenty years or so, as patients have become accustomed to go to the doctor and to the district hospital rather than call the doctor to the home.

Here, then, on the northern Great Plains, we have a "pilot plan" offering a large measure of health security to a population group which is all too familiar with economic adversity. The people like the program and the physicians are satisfied with it. Recently, Dr. A. D. Kelly, Assistant Secretary of the Canadian Medical Association, analyzed the program in the light of the Principles Relating to Health Insurance enunciated by the Association in 1944. He concluded that the region's universal coverage contributory program was essentially consistent with these Principles, except that practising physicians were not in positions of administrative responsibility either in the Health Region or in the Provincial Health Services Planning Commission. Despite this, Dr. Kelly conceded that the regional administrative arrangement "has worked with remarkable satisfaction."[5]

The program is not static. The Regional Board and the Health Officer, in close consultation with professional and lay groups and community institutions, are constantly exploring new avenues of accomplishment and of coördination. Physicians are beginning to insist that their patients attend well baby and preschool clinics. Public health nurses are relying heavily on the assistance of private practitioners. A healthy attitude of mutual dependence is spreading. Coördination of community and personal health services in the field is fostered centrally by virtue of the fact that all administrative matters, relating to any aspect of the program, are channeled through the Director of Regional Health Services in the Provincial Department of Public Health.

The Regional Board is taking an in-

creasingly active interest in planning improved hospital and diagnostic facilities at regional and district centers. They are fully aware of personnel problems, too, ranging from the chronic shortage of nurses to gaps in their physician resources, and their latest action was to guarantee a doctor $6,000 to move into a remote area of the region. It has been particularly gratifying to see the Board's steady swing to the conviction that having two specialists in surgery and one radiologist in the region does not spell adequacy in specialist resources for 55,000 people. This conviction has not been un-influenced by the Board's annual expenditure of $75,000 for specialist care beyond the borders of the region. They now have their minds set on building a group of full-time consulting specialists who would handle cases by referral from general practitioners and would also visit principal district centers regularly. Characteristically, they are tackling this rather touchy objective in full consultation with their Medical Advisory Committee, sensing the soundness of an evolutionary development through common agreement.

Many problems still await solution, of course, in an evolving program of this kind. What is the proper balance in public health authority as between the province, the region, and its constituent municipalities? When a province-wide program of health insurance is established, what degree of decentralization may properly and wisely be permitted? Must the relationship between basic public health services and medical services remain one of coördination, or is complete integration possible? Can the organization of rural health services, as a quality measure, be accomplished through inducements and education without coercion?

Of perhaps more immediate concern, what would a continued drought like that of the 1930's do to a program financed largely through a flat, personal tax? Whatever the answer, there are signs that this worry may shortly be ended. The Dominion Government has just embarked on the first stage of a national health program, which is frankly preliminary to a second stage, Dominion assistance to the provinces to enable them to finance comprehensive health insurance. Toward the first stage, involving the strengthening and extension of public health work, hospital construction, and general health planning, the Dominion is granting $30,000,000 annually to the provinces. This sum, on a per capita basis, is about double that granted by the federal government in the United States for similar purposes. These grants are for general public health work, tuberculosis control, venereal disease, cancer control, mental hygiene, crippled children, professional training, public health research, and—as stated—hospital construction and general planning. The Dominion grants mean improved programs and more stable programs. If they have been criticised by major political parties in Canada other than the party in power, it is because they do not go far enough.

Compulsory health insurance lies just around the corner in our neighboring nation to the north. And the Swift Current program is proving that it will work.

REFERENCES

1. Sigerist, Henry E. *Report of Saskatchewan Health Services Survey Commission.* Regina: Thos. H. McConica, King's Printer, 1944.

2. The Experimental Health Program of the United States Department of Agriculture, a study made for the Subcommittee on Wartime Health and Education of the Committee on Education and Labor, U. S. Senate, S. Res. 74, 78th Cong., and S. Res. 62, 79th Cong. (*Subcommittee Monograph No. 1*). Washington: Gov. Ptg. Office, 1946, p. 33.

3. Saskatchewan Health Services Planning Commission, *Report on Operations of the Saskatchewan Hospital Services Plan Covering the Organization Period in 1946 and the Calendar Year 1947.* Regina: Thos. H. McConica, King's Printer, 1948.

4. *Blue Cross Bulletin,* July-August, 1948, p. 6.

5. Kelly, A. D. The Swift Current Experiment. *Canad. M. A. J.,* 58:506–511 (May), 1948.

Vol. 39

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 39 February, 1949 Number 2

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BUILDING OUR DEFENSES AGAINST INFLUENZA

PREDICTIVE epidemiology is always a hazardous business; but with the first half of the winter season gone — and no unusual prevalence of the disease reported in the United States—it did not look as if 1948–1949 were to be an "influenza year." Now, however, comes disquieting news of widespread upper respiratory disease on the continent of Europe. Whether this is influenza or not, whether it will cross the ocean or not, we cannot, at this writing, know. In any case, there is ample reason for perfecting our defenses against this disease. In the spring of 1918, there were distinct localized outbreaks which may reasonably be assumed to have been forerunners of the great pandemic of the fall. If such outbreaks occur this spring, their careful study will be of prime importance.

In 1918, there was very little we could have done in the way of control, even if the whole future time schedule of the pandemic had been released in advance. Today, the picture is a different one. We know that preventive immunization is a powerful weapon in the control of influenza; but we also know that it is a highly specific weapon and that the vaccine which controls one "type" of the disease may be practically ineffectual against another "type." We have the scientific basis for real protection against this appalling malady, but success will depend entirely on our knowledge of the particular strain of virus concerned in a given outbreak and our ability to prepare a specific vaccine in time.

It was for these reasons that the 4th International Congress for Microbiology in 1947 proposed a world program of collaboration for the control of influenza; and that — later in the same year — the Interim Commission of the World Health Organization established an Interim Influenza Committee in London. Early in 1948, the Strain Study Center now at Long Island College of Medicine was recognized by the Surgeons General of the U. S. Army, Navy, Air Force, and Public Health Service as our National Center to coördinate work in this country and to coöperate with the World Health Organization in its global task. This center is "(1) to serve as a clearing house in the United States for the receipt and dissemination of information regarding influenza and the virus responsible for the disease; (2) to coördinate the work of the diagnostic 'watch stations' needed in the United States for the laboratory identification of cases of influenza

and the isolation of new strains of the influenza virus; and (3) to aid in arranging conferences looking toward possible improvement of influenza vaccine by the incorporation of newly isolated strains of virus."

To work with this National Center, a chain of some 60 federal, state, and local laboratories, widely distributed through the United States and its territories, have been designated as participants in the program. These laboratories have been listed by J. T. Culbertson in the January issue of this *Journal*.[1] About half of these laboratories are prepared only to make agglutination-inhibition tests on the serum of patients with suspected influenza. The other half are also equipped for isolation of the specific virus. When a No. 1 station reports elevated titers of influenza antibodies for any outbreak of respiratory disease, the nearest No. 2 station will send into the affected area a team of investigators expert in the isolation of the virus. Once a strain of virus has been isolated, it will be sent to the National Influenza Strain Study Center on Long Island for antigenic analysis.

This is a sound and well articulated program of defense against influenza. Its execution should give us full knowledge of the presence of the enemy and open real possibilities of effective defense. Success, however, will depend on the full coöperation of health officers and of physicians throughout the land. Only by prompt reporting of all outbreaks of respiratory disease, and after immediate transmission of reports to the Influenza Information Center in the Division of Research Grants and Fellowships at the National Institute of Health in Washington, will the wheels begin to turn. This Center will alert the No. 1 station and the process described above will begin to function. Primary responsibility, however, must rest with the local health officer. Prompt notification of outbreaks of respiratory disease this spring may save many thousands of lives — if an epidemic of virulent influenza should visit us in the future.

REFERENCE

1. Culbertson, James T. Plans for United States Coöperation with the World Health Organization in the International Influenza Study Program. *A.J.P.H.* 39, 1:37 (Jan.), 1949.

COMMERCIAL EXPLOITATION OF GLYCOL VAPORIZERS

NUMEROUS articles on the use of glycol vapors for the prevention of acute respiratory diseases have appeared in the lay and semiscientific press during the past year. The general import of this publicity is that we now have a panacea for the prevention of colds. Since everyone catches colds, and colds result in more loss of time to industry than any other single cause, the desire on the part of the public to make use of such an apparently simple preventive method is natural. What the above mentioned writers fail to point out and, unfortunately, this is true even of one popular article which appeared in an official medical publication, is that upper respiratory infections are transmitted in many ways other than through the general atmosphere of occupied spaces. Infection from hands and handkerchiefs and sneezing cannot possibly be controlled by general aerial disinfection of occupied indoor spaces. No matter how completely the air may be disinfected, people will still catch colds.

The recent uncritical publicity has been accompanied by a nation-wide commercial exploitation of glycol vaporizing devices. These are being advertised for essentially indiscriminate use in homes, offices, schoolrooms, and almost any place where two or more people may congregate. The devices being offered for sale

vary from small cans or boxes that may be placed in the corner of a room or on a table, to vaporizers which may be installed in the ducts of large ventilating systems. Some of these devices have been designed by reputable engineers who are working to supply satisfactory apparatus; others are being promoted by individuals and concerns apparently quite ignorant of the scientific principles involved. None of these devices has yet been certified as to its effectiveness by the Council on Physical Medicine of the American Medical Association or any other authoritative body. Since health officers, school physicians, and practising doctors throughout the country are being deluged with requests for information and advice regarding glycol vapors, it is appropriate to review briefly the evidence on which their use is based.

Two years ago the status of methods for the control of air-borne infection was critically reviewed in a report by a subcommittee of the A.P.H.A.[1] This report emphasized that glycol vapors, particularly those of triethylene glycol, had a marked bactericidal effect on many types of air-borne bacteria and viruses when sprayed into experimental chambers. This effect is greatest when relative saturations of the vapor exceed 50 per cent and when the relative humidity is from 25 to 50 per cent. At lower relative saturations and in drier or moister atmospheres the bactericidal effect is progressively diminished. An instrument called a glycometer or glycostat, which measures the relative saturation of glycol vapor in the air and which may be utilized to control the output of vaporizers, has been developed for experimental uses but no such instruments are as yet available commercially.

The degree of aerial disinfection obtained in experimental trials of glycol vapors under field conditions in hospital wards, army barracks, and industrial establishments may be less marked than that achieved under experimental laboratory conditions. The glycol vapors are largely noneffective on bacteria-laden dust particles. Except in completely air-conditioned environments or when glycostats are used in conjunction with vaporizers it has been difficult to maintain adequate concentrations of the vapor. Constant engineering supervision has been necessary. Concomitant measures to control dust are imperative to achieve substantial aerial disinfection.

Only a few experimental trials of glycol vapors for the prevention of acute respiratory diseases have been reported. The results vary from a marked reduction of infections among bedridden patients in a hospital ward to inconclusive effects in other instances. Too few studies have been conducted in sufficiently large population groups, under sufficiently well controlled conditions and for sufficiently long periods of time to provide any basis for a conclusion regarding the effectiveness and practicability of glycol vapors for the control of acute respiratory infections.

Two years ago the subcommittee of the A.P.H.A. concluded:

> The available evidence strongly indicates that . . . glycol vapors are useful adjuvants to aseptic techniques in the reduction or elimination of air-borne infections in operating rooms, and in contagious disease and pediatric wards . . . The general use of disinfectant vapors in schools, barracks and in specialized industrial environments is not justified at the present time. There is great need for further carefully controlled field studies . . . There is no justification for indiscriminate use . . . in home, offices, or places of public congregation.

In the past two years real progress has been made in the development of vaporizing devices, but there has been essentially no advance in our knowledge of the effectiveness of these vapors in the prevention of acute respiratory diseases.

Until such knowledge becomes available, it is unwise to recommend the installation of glycol vaporizers except under carefully controlled experimental conditions. Present commercial campaigns of exploitation raise the real danger that the method may be discredited and that the rational development of this important field of air sanitation may be discouraged.

REFERENCE

1. Present Status of the Control of Air-borne Infections. Report of Subcommittee for Evaluation of Methods to Control Air-borne Infections, of the Committee on Research and Standards, A.P.H.A. James E. Perkins, M.D., *Chairman, A.J.P.H.*, 37:13–22, (Jan.), 1947.

HOME CARE AT THE MONTEFIORE HOSPITAL

THE program for home care at the Montefiore Hospital of New York City, described in this issue of the *Journal* by Dr. Martin Cherkasky, is worthy of the serious consideration of our readers. The concept is not, of course, a new one; but it has perhaps never been developed with quite such completeness and success.

The program is designed for patients who — for one reason or another — do not require further hospitalization but do need continuing medical and nursing care. When preliminary study of a given patient indicates that the necessary domiciliary care can be provided, with advantage to the individual concerned, the patient is transferred to his own home and the hospital supplies any or all of the following: medical service, at any hour of the day or night, with all necessary consulting specialist consultations; social service from the regular hospital staff; nursing care and instruction by the staff of the Visiting Nurse Service of New York, under a contract plan; housekeeping service, if indicated, to relieve the housewife for care of the patient; transportation to and from the hospital for special examinations or treatments; all necessary medication and appliances; occupational therapy and physical therapy in the home.

Analysis of over 23,000 days of patient care shows a cost of $3 per patient day for this type of treatment as compared with $12–$15 per day for intramural care. It should be noted that the cost of food and shelter is shifted to the family. It is also clear that the adoption of such a program does not mean a reduction of hospital costs, since the beds vacated by Home Care will be filled by other patients needing full hospitalization. The Montefiore plan has been made possible by grants from the New York Cancer Committee and the Greater New York Fund. The net potential saving of total community resources for meeting total community needs is, however, very great.

The program is presented by Cherkasky, *not* as a means of saving money; but as a method of providing better medical care for a specific group of patients. Under the plan developed at Montefiore the patient has not only the comfort of his own bed and the freedom of his own household regime, but a more personalized medical service when a doctor visits two or three times in his home than can be involved in the routine of ward rounds where attention is inevitably focused on new and critical cases. He receives not less adequate but infinitely better medical care; and to the doctors who participate, the program has brought an invaluable revelation of the social and psychological backgrounds of the lives of men and women who have hitherto been occupants of numbered beds on a ward.

The two essential factors in the success of such a plan are: (1) the careful selection of suitable cases; and (2) the ability of the hospital to provide the Home Care services listed above. At Montefiore, every patient considered for

Home Care is first studied by the physician to determine whether he is medically eligible; and, next, a careful social service checkup is made to determine the suitability of the home and the adequacy of the emotional atmosphere, on the part of both the patient and the family. About half the cases considered qualify on both grounds.

This program makes a contribution of major importance to the technology and to the philosophy of medical care. It is essential, however, to remember that its successful application depends on a high degree of hospital development, in the fields of medical staff, social service, nursing, physical and occupational therapy. It would be most unfortunate if so fruitful a concept were to be discredited by wholesale displacement of patients by hospitals which lack the facilities to carry the program out successfully.

HUGH S. CUMMING

THE death of Hugh S. Cumming on December 20, 1948 — at the age of 79 years — removed one of the outstanding leaders of American public health. He was a member of this Association from 1914, became a Charter Fellow in 1922, served as Elective Councillor (1921–1922 and 1925–1931), and Executive Board Member (1929–1931); and was elected President in 1931.

Dr. Cumming was in the fullest sense a "career man" in public health. He joined the staff of the U. S. Public Health Service in 1894, within less than a year of graduation from the University College of Medicine at Richmond, and progressed steadily to his appointment as Surgeon General in 1920. In this latter post, he served until 1936, overlapping the terms of five Presidents of the United States. Under his administration, the Service grew from comparative obscurity to a bureau of far-reaching influence, employing more than 1,000 physicians. During this period, the maritime quarantine program of the Service was carried to completion, pre-immigration physical examinations were introduced at our Consulates abroad, a national leprosarium and national narcotic farms were established, and the work of the Hygienic Laboratory was greatly strengthened. Perhaps the most significant and outstanding service of this Surgeon General, which does not appear in the official record, was the discernment and vision with which he brought young men of ability and promise into positions of responsibility in the Service. Many of our leaders in subsequent years were selected and advanced in the Service by General Cumming.

Dr. Cumming was not only a wise administrator but also an excellent type of the Virginian gentlemen, with a flair for diplomacy. On the international stage, he served as President of the Office Internationale d'Hygiène Publique, as an active member of the Health Committee of the League of Nations, as a delegate to the Cannes Conference in 1919, and as head of an allied medical mission to Poland. His major interest, however, was in the Western Hemisphere, and he served for many years as President of the Pan American Sanitary Bureau, continuing in this post after his retirement from the Public Health Service up to 1947. He received decorations from seven Latin-American countries for the distinguished and generous service which he gave to this cause.

The American Public Health Association, the United States Public Health Service, and the general cause of public health in the Western Hemisphere continue to reap notable benefits from Hugh Cumming's leadership in the past. They will recall his name with grateful admiration in the future.

LETTERS TO THE EDITOR

TO THE EDITOR:

This letter is prompted by the recent excellent article by John B. Blake, "The Origins of Public Health in the United States." The following facts concerning public health in the prospective State of Hawaii may not be generally known and may be of interest to some of your readers.

1825. Action was taken against the "promiscuous immorality which had sprung up in the port of Honolulu . . ." This may have been the forerunner of a venereal disease control program which was quite highly developed in the '60's with dispensaries and hospital beds for syphilitics. *(Oxford Dictionary*—1862. "A syphilitic ward in the Queens Hospital at Honolulu.")

1839. Kamehameha III, on May 29, 1839, signed Hawaii's first quarantine law. "4. For the purpose of carrying into execution the above regulations, it shall be the duty of the several Governors, to set apart a Board of Health for each of the harbors of the Sandwich Islands. And such Board of Health shall have full power to enact such laws and regulations as may be necessary to protect the health of their several places. They (the governors) shall also appoint health officers . . ."

1850. December 16, 1850, Kamehameha, in privy council, established a Board of Health for the Islands.

1851. On May 8, 1851, the legislature confirmed the above action. Some subjects covered by the 19 sections of the law were: Powers of the Board members; nuisances; study of existing quarantine laws and framing rules regarding them; reporting of "malignant disease" and deaths; appointment of physicians to care for isolated patients; and power to make necessary regulations.

1854. The Minister of Interior was directed to appoint vaccinators for the several major counties.

1855–1862. The Minister of Interior includes in his report activities of the Board of Health.

1866 to the present time. The Board of Health has submitted annual or biennial reports.

The documents mentioned above are available at the Territorial Archives, Honolulu. They may represent one of the most complete records of early public health activity of any of the several states or territories.

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Dermatology
563 Young Hotel Building
Honolulu, Hawaii

December 28, 1948.

TO THE EDITOR:

When one is honoured by a reference in the AMERICAN JOURNAL OF PUBLIC HEALTH one expects to be quoted correctly. May I point out that in Dr. Quinn's article on rheumatic heart disease in your issue of August, 1948, page 1078, I am credited with "the statement based on data collected some 30 years ago that rheumatic fever is 30 times as common in *industrial as in rural towns.*"

What I said was very different. "No disease has a clearer cut social incidence than acute rheumatism, which falls perhaps 30 times as frequently upon the poorer children of the industrial town, as upon the children of the well-to-do."

I most cordially agree with Dr. Quinn on the importance of Crowding.

This statement is probably still true in England, though the incidence has much lessened.

J. A. GLOVER, M.D., F.R.C.P.
Editor, *Monthly Bulletin* of the Ministry of Health.
London, S.W. 1.

November 22, 1948

Clearing House on Public Health Salary Information

MANY CITIES INCREASE PAY RATES

Nearly two-thirds of 97 reporting cities of over 5,000 population increased the pay of some or all employees in the first half of 1948. Most of the other cities had granted pay increases in 1947, and several raised pay rates two or more times during the period from January 1, 1947, to July 1, 1948. These are the highlights of a pay rate survey of 20 standard positions in nearly 100 cities made recently by the Civil Service Assembly and the International City Managers' Association.

In 1947 cities tended to raise the wages of firemen, policemen, and certain labor groups, and let the pay of junior professional employees and certain skilled office workers lag behind. But during the first part of 1948 the discrepancy was narrowed, with more cities making pay increases for professional employees and office workers.

Thirty of the 97 cities reported that the pay rates of all employees were increased during the first half of 1948; 11 cities of 25,000 to 100,000 and 9 cities of 5,000 to 25,000 increased all pay rates.

Most cities increased pay by a flat amount per month, ranging from $5 to $25. Only 3 increased salaries by a flat percentage amount (5 per cent), and 4 adopted a higher pay schedule in connection with new position classification and pay plans. The survey entitled *Pay Rates for Selected City Jobs in July, 1948*, is published by the International City Managers' Association, 1313 E. 60th Street, Chicago, Ill.

SALARY DATA IN MUNICIPAL YEAR BOOK

The *Municipal Year Book* for 1948 has a chapter on Salaries of Municipal Officials. There are tables showing average, lowest, highest, and quartiles for the various types of administrators grouped by population of the cities. The value of the figures is limited for purposes of comparison between one administrator and another because the same cities do not report for each category. However, if you are a health officer in a city of 50,000 population with a salary of $4,500, it might help to tell your appropriating body that only 14 out of 56 cities of your size pay as little as that, and that 14 pay $6,880 or more, with $8,550 as the top.—*Municipal Year Book;* International City Managers' Association, Chicago, 1948.

SALARIES IN SCHOOL HEALTH SERVICE

Early in 1948 the Cincinnati public schools conducted a fact-finding inquiry concerning school health services in other cities of similar size. Replies were received from 36 cities of 43 queried, giving maximum salaries for medical and other specialized personnel engaged in school health services. This study might well be included in a library or bibliography of current salary data. Available from Cincinnati Public Schools, Department of Research, C. G. Tower, Director, 216 E. Ninth Street, Cincinnati 2, Ohio.

OHIO PROPOSES $5,000,000 INCREASE IN STATE SALARIES

The Public Administration Service has just recommended to the Ohio Salary Study Commission, salary increases totalling 5 million dollars a year for the 26,000 employees of the state. The Governor's salary would be raised from $13,000 to $20,000, that of chief administrative officers such as state audi-

tor, treasurer, attorney general, directors of education, health, finance, etc., from $6,500 to $12,000. This represents a rise of more than three-quarters. The salary plan further provides for salary ranges of five steps, with each step representing an increase of about 5 per cent over the preceding step. If the plan should go into effect for the state health officer, for example, it would have a far-reaching effect on the salary levels for other state health officers as well as for employees of health departments throughout Ohio.

In setting up the recommendations the report made it plain that the recommended rates were based upon the practices of other large states of the East, Mid-west and West. Recognizing the competition with private business, the study group made an effort to strike a medium between practices of other states and the salaries paid by private employers.

CONFESSION IS GOOD FOR THE SOUL

The *Oregon Health Bulletin* for December 8, 1948, says: "Although county health organization in this state is favorable in comparison to the national picture, present indications are that Oregon will enter 1949 without a single local health unit which meets basic acceptable standards recommended by the American Public Health Association.

"Principal reasons for the deficiencies are inadequate budgetary provision for recruitment of necessary staffs and salary scales unable to compete with private practice or compensation offered by the neighboring states of California and Washington.

". . . Salary difficulties encountered in obtaining medical personnel can be seen in the fact that present remuneration to private physicians on the Pacific coast averages far in excess of any public health pay scale in Oregon."

This reënforces what has often been said, namely, if adequate salaries were offered, the shortages in public health personnel would largely disappear. The oftener this is said in so many words or in the terms of the Oregon *Bulletin*, the sooner will appropriating bodies recognize its truth and act upon it.

MEDICAL ECONOMICS PUBLISHES ANOTHER STUDY OF PHYSICIANS' INCOMES

Medical Economics, which is a national business monthly magazine for physicians, has completed its 6th quadrennial survey of incomes of physicians in private practice. The results are published in several issues of *Medical Economics*—September, October, November and December, 1948, and February, 1949—and will be continued in future issues.

The survey is based on a sample of approximately 5,000 physicians of 135,000 who received the questionnaire with their March, 1948, issue of *Medical Economics*. Data are shown with respect to gross and net income by states, by medical specialty, by years of practice, and a number of other classifications.

This first post-war study shows average net income of practising physicians more than doubled since the latest previous study in 1935. Although gross income figures are not at all comparable with salaries of public health physicians and net income figures not wholly so, this material should nevertheless be useful on a shelf of current salary data. It has not yet been decided whether the material will later be put together in a bound volume.

Medical Economics is published in Rutherford, N. J. It's subscription price is $3.50 per year.

STUDY OF SALARIES AND WORKING CONDITIONS OF NUTRITIONISTS

Questionnaires for a study of the economic status of dietitians, nutritionists, and food service managers were to be mailed to representative members of

the professions in February. The study is being conducted by the Bureau of Labor Statistics of the U. S. Department of Labor in coöperation with professional societies.

The survey is intended to find out the facts about earnings and working conditions of these persons and to learn what they think of their jobs. Together with similar studies of other professions, such as nursing, social work, and librarianships, it will give a picture of the comparative economic status and will provide much needed general information on the earnings and working conditions of the professional workers in the United States.

In announcing the study, Ewan Clague, Commissioner of Labor Statistics, urged all persons receiving questionnaires to answer them promptly. All replies will be entirely confidential and anonymous, and will be used only to prepare a summary report on economic conditions in the profession.

A.P.H.A. Vocational Counseling and Placement Increases Activity

Franziska W. Racker, M.D., M.P.H., who serves on the A.P.H.A. staff in charge of the Vocational Counseling and Placement Service in the New York office, has reported on her activities for the past year. Of particular interest is the comparison between the demand and supply of professional services in public health as manifest during the Annual Meeting week of the A.P.H.A. in the last two years.

In October, 1947, at the 75th Annual Meeting of the A.P.H.A. in Atlantic City, 52 employers interviewed the Service and a total of 69 candidates appeared who were interested in placement. In November, 1948, at the 76th Annual Meeting of the Association in Boston, 89 employers registered with the Service and only 38 candidates.

The following table shows the relationship of demand and supply in one week's registration.

It should be noted that the Association does not undertake to register public health nurses, believing that this is a special function best handled by specialized agencies.

Employers and Candidates Interviewed in Boston at the Vocational Counseling Booth November 8–12, 1948

	Employers		*Candidates*	
	1948	*1947*	*1948*	*1947*
Dentists	1	—	1	—
Health Educators	12	8	9	22
Laboratory Workers	9	9	2	4
Non-Medical Administrators	—	1	1	6
Nurses	14	3	5	—
Physicians	34	22	17	18
Sanitarians	7	1	1	—
Sanitary Engineers	4	2	1	10
Statisticians	—	2	1	8
Miscellaneous	8	4	—	1
Total	89	52	38	69

Revised Criteria for Accreditation of Public Health Courses

The Criteria for accreditation of institutions for the degree Master of Public Health (M.P.H.—D.P.H. in Canada) and the degree Doctor of Public Health (Dr.P.H.) for the academic year 1949–1950, as recommended by the Committee on Professional Education and approved by the Executive Board, are printed below. In comparing the new Criteria with the Criteria on which the accreditation of schools for the academic year 1948–1949 was based, two changes will be noticed. The new Criterion No. 3 raises the old standard of a minimum requirement of six full-time senior faculty members to a new standard of eight, of which four must be primarily responsible to the administration of the school (previously three). This new requirement is already met by all ten schools which are accredited for 1948–1949.

The new Criterion No. 12 for the Dr.P.H. degree will make it possible for the schools to accept for the Dr.P.H. degree unusually well qualified persons without a prior doctoral degree, while the old Criteria stipulated that such students must hold a prior doctoral degree.

Criteria for Institutions To Be Accredited for the Degree of Master of Public Health (Diploma of Public Health in Canada) and for the Degree of Doctor of Public Health, for the Academic Year 1949–1950 *

Criteria for Both Degrees

The Institution

1. Any institution to be accredited must be a member of the Association of American Universities, or present evidence that it may reasonably be considered as qualified for such membership.
2. The school, faculty, or council administering courses in public health must have such practical autonomy that requirements for the degrees are effectively controlled by the public health faculty.
3. The teaching of public health must be under the direction of a full-time teaching faculty which must include, in addition to assistant professors and others of lower rank and in addition to part-time appointees:
   a. One member of professorial grade as director of the school or department, and at least three other members of professorial or associate professorial grade—all four primarily responsible to the administration of the school, and
   b. At least four other members of professorial or associate professorial grade, either primarily responsible to the school or giving full time to the university and carrying specific major responsibility for teaching and research in the school. Such a minimum faculty could provide for a body of graduate students in public health totalling not more than approximately thirty such students.
4. The school or department must have an assured minimum basic income adequate for its teaching and research functions and for meeting the various criteria outlined. Such income should be construed to include income from endowment of the school, contributions made from general university funds, and grants made over a period of at least five years from sources outside the university.
5. Proper housing must be available, including

* Revision adopted by the Committee on Professional Education of the American Public Health Association, November 8, 1948. Approved by the Executive Board November 29, 1948.

lecture rooms, seminar rooms, and adequate laboratory facilities for the teaching of subjects in the field of microbiology, including microscopes, culture media, apparatus, etc.; for the teaching of vital statistics, including calculating machines for student use, and apparatus for chart-making, with tabulating machinery accessible for demonstration purposes, and for the teaching of sanitary engineering, including laboratory facilities for the examination of water and sewage and for the demonstration of the basic principles of hydraulics.

6. Library facilities are essential to the extent of at least 3,000 volumes in the general field of public health, including such special topics as epidemiology, microbiology, vital statistics, sanitary engineering, medical economics and medical sociology, nutrition, and the like, and current periodicals (not including health department reports) to the number of at least 50 in the fields mentioned above.

7. There must be available conveniently located administrative units of public health services which can be utilized for observation and criticism in the basic courses for the Master of Public Health, and which are of sufficiently high quality to make such observation fruitful.

CRITERIA FOR THE M.P.H. DEGREE

The Course

8. Candidates to be admitted for the degree of Master of Public Health (Diploma of Public Health in Canada) may be either:
   a. Holders of the degree of M.D., D.D.S., or D.V.M., or equivalent degree, from an acceptable institution; or
   b. Holders of the Bachelor's Degree with adequate training in mathematics and the natural sciences, including chemistry and biology, and also qualified in some professional capacity to pursue education in public health.

   The latter qualifications may normally be fulfilled either by
   x. Professional academic qualifications in engineering, public health nursing, education, or some other field of public health representing the equivalent of at least one year of academic work in addition to the completion of a four years course leading to the Bachelor's Degree;
   y. or experience (normally not less than three years) in some field of public health practice or in teaching of a type acceptable to the school.

9. The length of the course shall be not less than one academic year of 32 weeks.

It is highly desirable that the candidate shall have had practical public health experience in the form of supervised field service or in a position involving the exercise of substantial initiative and responsibility. This experience should preferably be obtained prior to entrance into the school. In some schools, candidates not so equipped on entrance are required to complete three months of practical work in the field before receiving their degree.

10. The following courses are among those generally offered in schools of public health:
    a. Public Health Practice (Administration)
    b. Sanitation
    c. Microbiology
    d. Vital Statistics
    e. Epidemiology
    f. Physiological Hygiene
    g. Nutrition
    h. Public Health Nursing
    i. Health Education
    j. Social and Economic Factors Influencing Health (Economic Factors in Health)
    k. Mental Hygiene
    l. Public Health Law
    m. Industrial Hygiene
    n. School Health
    o. Maternal and Child Health
    p. Tuberculosis
    q. Venereal Disease
    r. Dental Health
    s. Hospital Administration

It is believed that it would be highly undesirable to make standard requirements with regard to any particular courses of instruction. It does seem important, however, that the student—at some point in the M.P.H. course, or prior to that course—shall receive instruction in the following basic fields:

A. *Basic Public Health Sciences*
   (1) The nature and functioning of the human organism, and the personal behavior which influences its well-being, including nutrition and mental hygiene.
   (2) The nature and behavior of various forms of parasitic life, including

viruses; their interaction with the human body as demonstrated by clinical and immunological reactions; the modes in which such microörganisms are transferred from host to host in the course of their epidemiological history; and the ways in which such dissemination may be controlled.

(3) The physical environment as it influences health, including not only the classical problems of environmental sanitation, but also those relating to housing and industrial hygiene.

(4) The social and economic factors which influence the health of the individual and of the community, and the influences of sickness on the social and economic status of the individual and the community.

(5) The nature and sources of quantitative information bearing on the health of the people, and its numerical presentation and analysis.

B. *Public Health Practices*

(6) The principles of applying the basic sciences listed above to community health and welfare. This involves the elements of sound public administration as applied to official and voluntary health agencies, including office management, budget making, personnel relations, and public health law; and includes also the wide field of public relations as influenced by health education and community education.

11. There must be opportunity for advanced specialization in one or more of the fields listed under 10 above or in such special fields as tuberculosis control, venereal disease control, or tropical medicine. There will be little time available in the M.P.H. year for advanced specialization; but basic work can be conducted effectively only in an atmosphere of advanced scholarship and with the essential stimulus which comes from the conduct of productive research by the faculty and advanced students.

CRITERIA FOR THE DR.P.H. DEGREE

12. Candidates to be matriculated for the degree of Dr.P.H. must be persons of demonstrated ability and promise of leadership. They must normally hold a doctoral degree from an acceptable university; although in exceptional cases, candidates of unusual experience and attainment may be admitted without such a degree.

13. The candidate for the Dr.P.H. must complete—or must already have completed—basic courses equivalent to those required for the degree of M.P.H. by the university in which such student matriculates for the Dr.P.H.

14. The candidate, in addition to fulfilling criteria 12 and 13 must complete a minimum of one academic year of work in residence at the university involving advanced specialization in the particular area of public health for which the student is preparing. The total period of academic instruction in public health should be at least two years beyond that spent in acquiring previous doctoral degrees.

15. The candidate must demonstrate ability for leadership in his field, as well as for advancement of scientific knowledge. This must be indicated by successful professional experience in a post involving the exercise of substantial initiative and responsibility, preferably prior to admission.

16. The candidate must indicate capacity to make substantial contributions to the advancement of the science and art of public health by submitting a dissertation, *based on original research*, satisfactory to the authorities of the university.

Credit Lines

WEST VIRGINIA STATE DEPARTMENT OF HEALTH

"A Close-Up View" by the West Virginia State Department of Health is subtitled "A Picture of Public Service in West Virginia." It shows what can be done with a typewriter, a mimeograph machine, and a little imagination. In 9 widely spaced pages it asks and answers 19 questions about public health in West Virginia beginning with "What is public health?" and ending with "How can we get better local health services?" It answers in simple straightforward language two of the questions most frequently asked by laymen, "What is a local health department?" and "What should a local health department mean to me and my family?" For those states or communities that neither have a large printing budget nor color and drawing artists at their command, this "Close-Up View" should be useful in showing how to present basic facts for busy people. The address of the West Virginia State Health Department is Charleston 5, W. Va.

THE CHILD WITH SPECIAL HEALTH PROBLEMS

At a joint session of the American School Health Association, the School Health, and the Maternal and Child Health Sections at the 76th annual meeting of the A.P.H.A. in Boston, a panel discussion of *Children with Special Problems* was a part of the program. This is a report recently published by the National Tuberculosis Association by its Committee on Educational Adaptations for Children with Special Health Problems, whose Chairman is Charles E. Wilson, M.D., of Yale University. The full title of the report is *Children with Special Health Problems: Educational Adaptations in School, Home and Hospital.*

The report centers on tuberculosis, nutrition, rheumatic fever and heart disease, and a miscellaneous group of conditions including convalescence, diabetes, allergies, and epilepsy. The crippled, the blind, and the deaf are not considered since there is already a large body of published information on these conditions.

The purpose of this brief report is to encourage everywhere "the adaptation of education to the needs of individual children," a principle everywhere agreed upon but not yet everywhere put into practice. The key to effective adaptation of educational processes to the needs of the special child is teamwork between parent, teacher, physician, hospital, and health department. It is an excellent guide for school physicians, administrators, nurses, teachers, and health agency workers.

The report, which includes a brief set of references on each special condition discussed, is available from state and local tuberculosis associations.

ANOTHER CONSOLIDATION IN INDIANA

Some time ago Floyd and Harrison Counties of Indiana took the leap into matrimony and organized the first bi-county health department in the state. But the City of New Albany in Floyd County, with its population of about 25,000, decided to stay on the outside. Now its health officer has resigned and the city fathers "got religion." They have consolidated the New Albany Board of Health with the Floyd-Harrison County Health Department. The city will join in the county organizations program and share the

services of the joint department. There will be one vital statistics office for the two counties and the City of New Albany. Congratulations are in order for all concerned.

TAKING TIME BY THE FORELOCK

At the end of the Association's annual meeting in Boston, on November 12, advantage of the interest stirred up in health matters in the newspapers and the radio was taken to have "the greatest single lack in America's public health program—full-time, well-staffed local health units—" discussed on Radio Station WHDH, Boston.

Those taking part were Martha Eliot, M.D., Associate Director of the Children's Bureau in Washington and retiring President of the American Public Health Association; Hugh R. Leavell, M.D., Professor of Public Health Practice at the Harvard School of Public Health; and Arthur Burke, M.D., District Health Officer of the Nashoba Health District, made up of ten towns. They were introduced by Vlado A. Getting, M.D., Massachusetts Health Commissioner. New England listeners were reminded of the well known facts that thousands of communities are without the local health services that should reach every citizen and that these services can be had only by the coöperation in a unified department, of communities too small to operate with effectiveness individually.

TOXICOLOGY OF SOME INSECTICIDES

"Toxicology of the Newer Agricultural Chemicals" by Arnold J. Lehman, M.D., Chief, Division of Pharmacology, U. S. Food and Drug Administration, should be of interest to everyone using the newer insecticides. A discussion of mean lethal doses as well as toxicity by dermal application is discussed. The article appears in the *Quarterly Bulletin*, Association of Food and Drug Officials of the United States, XII:3 (July), 1948, also as a supplement to the *Service Letter*, National Pest Control Association, Inc., 3019 Fort Hamilton Parkway, Brooklyn 18, N. Y.

SURVEY OF STATE HEALTH SERVICES BY WISCONSIN MEDICAL SOCIETY

Instances multiply in which the American Medical Association or its state or county societies are providing statesmanlike leadership in increasing both the quantity and quality of official public health services. The latest such instance that has come to hand is the *Report of the Technical Committee of the Wisconsin State Medical Society* to the subcommittee on reclassification and review of administrative agencies and state services of the legislative council, made up of two state senators and three representatives.

This survey of a state's public health organization could well serve as a model for such surveys in other states. It is a reasoned, restrained document completely free of special pleading. In making recommedations, it takes full account of the difficulties, traditional and otherwise, that stand in the way of their being carried out and the efforts already begun to overcome current shortcomings.

The cost of the study and publication was borne by the State Medical Society. The technical committee making it consisted of:

Dr. Gaylord W. Anderson, Director of the School of Public Health, University of Minnesota

Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association and former City Health Officer of Racine, Wis.

Dr. Carl D. Neidhold, past chairman of the Council on Scientific Work of the State Medical Society and a member of the Board of Health of the City of Appleton since 1934

Dr. H. Kent Tenney, past president of the Dane County Medical Society and advisor to the Bureau of Handicapped Children of the Department of Public Instruction

Information is not given as to whether the study is available for limited or general distribution, but the Society's address is 917 Tenney Building, Madison 3, and its Secretary is C. H. Crownhart.

KIWANIANS HEAR THE NEWS ABOUT "DRUNKS"

The speed of today's communication is graphically illustrated by "Iron Bars or Medicine?" in the *Kiwanis Magazine* of October, 1948, written by Anton Carlson, M.D., and Joseph Hirsh, President and Executive Director respectively of the Research Council on Problems of Alcohol. Its thesis is that chronic alcoholism is a disease, not a crime, and is a community problem. Medical and public health circles have only yesterday been persuaded of this thesis; in fact many are not yet persuaded. But already the organ of a great citizen group recognizes that "a wide awake and interested public can make the principles" of a medical approach to this problem "a living reality."

CITIZEN JOE WANTS HIS FACTS STRAIGHT

An interesting example of telling the citizen about health services in terms he can understand is *Major Activities* of the Connecticut State Department of Health. Done in blue and white, it tells how the state health department helps the garage where Mr. Jones works to overcome dangerous monoxide gas, how Mrs. Jones gets service in a prenatal clinic, how 5 year old Johnny was vaccinated, how the milk and water of the community were made safe. From that point it goes on to tell in conventional style the activities of each of the bureaus in the state health department.

KEEPING UP WITH THE BRITISH SOCIAL SERVICES

In November, the British Information Services (30 Rockefeller Plaza, New York 20) published No. 1 of its "Notes on British Social Services," which it expects to issue from time to time. This first issue summarizes briefly a good deal of information on the new health services and experimental industrial health service, social insurance, the disabled, as well as mentioning books for reference. This is a good way to keep up with the factual information on what is happening in the British Social Services.

COMMUNITY CARDIAC RESOURCES

The Philadelphia Heart Association has prepared a *Guide to the Use of Community Services for Heart Disease and Rheumatic Fever Patients in Philadelphia.* In an 11 page pamphlet it gives the main facts about treatment, convalescent care, home teaching, occupational therapy, social case work, vocational rehabilitation, follow-up, and recreational facilities. It further reminds the reader that rheumatic fever, as a reportable disease, should be reported to the Philadelphia Health Department as soon as the diagnosis is made.

NEW JERSEY HAS A FIRST

The report is now out of the First Annual Public Health Institute of Passaic County (June, 1948), sponsored by the Passaic County Tuberculosis and Health Association. A committee headed by Frederick P. Lee, M.D., Health Officer of Paterson, planned a two day institute in June limited to active public health workers in New Jersey. Panel discussions on Mental Health Approach to Public Health Activities, Methods and Materials in Health Education, and Communicable Diseases were held.

The report which includes a brief preface telling how arrangements were worked out is presumably available from Walter S. Page, Jr., Executive Secretary, Passaic County Tuberculosis and Health Association, Paterson 17, N. J.

BIBLIOGRAPHY OF PUBLIC HEALTH MOTION PICTURES AND FILM STRIPS

The accompanying bibliography of health film catalogs and general catalogs listing films on health subjects was prepared, at the suggestion of the Committee on Public Health Films of the Public Health Education Section of the American Public Health Association, for initial use at the Annual Meeting in Boston, November, 1948. It was assembled by Thomas C. Stowell, Assistant Director, Office of Public Health Education, New York State Department of Health, and Anne J. Edmund, Health and Welfare Division, Metropolitan Life Insurance Company, and represents materials which they have found useful in their programs.

This should not be considered a complete listing, but rather a start on something which it is believed will be helpful to public health workers in their health education activities. The Public Health Education Section has recommended that the bibliography be an annual publication in the *Journal*, with reprints for general distribution, and the committee will appreciate recommendations for future lists, which may be sent to Mr. Stowell at 18 Dove St., Albany 6, N. Y. It is proposed that future lists include the date of each catalog.

Reprints may be obtained from the Association headquarters in New York City.

General Catalogs

"Educational Film Guide"
H. W. Wilson Company, 950 University Avenue, New York 52, N. Y.

"Educators Guide to Free Films"
Educators Progress Service, Box 497, Randolph, Wis.

"Guide to U. S. Government Motion Pictures"
U. S. Library of Congress, Washington 25, D. C.
(Published in June, 1947, but Motion Picture Division was liquidated July, 1947)

"1000 and One; Blue Book of Non-Theatrical Films"
Educational Screen, 64 East Lake Street, Chicago, Ill.

"The United Nations in Films"
Film and Visual Information Division, United Nations Department of Public Information, Room 6300 C, Empire State Building, New York 1, N. Y.

"U. S. Government Films for School and Industry"
Castle Films, Division of United World Films, Inc., 445 Park Avenue, New York 22, N. Y.

Specialized Catalogs

Educational

"Dental Health Education Material"
American Dental Association, 222 E. Superior St., Chicago 11, Ill.

"Films Interpreting Children and Youth"
Association for Childhood Education, 1206–16 Street, N.W., Washington 6, D. C.

"Health Films Catalog"
Educational Film Library Association, Inc., 1600 Broadway, New York 19, N. Y.

"Sources of Educational Films"
National Education Association of the United States, 1201–16 Street, N.W., Washington 6, D. C.

"Films for Classroom Use"
Teaching Film Custodians, Inc., 25 W. 43rd St., New York 18, N. Y.

Medical

"Catalogue of Certified Professional Motion Picture Films"
Academy-International of Medicine, Department of Audio-Visual Aids, 214 W. Sixth Street, Topeka, Kans.

"List of Medical Films Which May Be Used in Professional Training"
Medical Illustration Division, Research & Education Service, Department of Medicine & Surgery, Veterans Administration, Washington 25, D. C.

"Medical Motion Picture Films"
American College of Surgeons, 40 East Erie St., Chicago 11, Ill. (December issue of the *Bulletin*)

"Medical Motion Pictures Procurable on a Loan Basis"
American Medical Association, Committee on Medical Motion Pictures, 535 N. Dearborn St., Chicago 10, Ill.

Safety

"Motion Picture Films of the Bureau of Mines"
Office of Mineral Reports, Bureau of Mines, Washington 25, D. C.

"National Directory of Safety Films"
National Safety Council, 20 N. Wacker Drive, Chicago 6, Ill.

Housing

"Films on Housing"
U. S. Federal Public Housing Authority, 1201 Connecticut Ave., N.W., Washington, D. C.

Nutrition

"Approved Films on Food and Nutrition," 2d ed. completely revised by the New York City Food and Nutrition Committee
Health Council of Greater New York, 137 Centre St., New York 13, N. Y.

Business and Training

"Business-Sponsored Educational Films"
Committee on Consumer Relations in Advertising, Inc., 420 Lexington Avenue, New York 17, N. Y.

"General Electric Motion Pictures"
Visual Instruction Section, Publicity Divisions, General Electric Company, Schenectady, N. Y.

"General Motors Film Catalog"
General Motors Corp., Department of Public Relations—Film Section, General Motors Building, Detroit 2, Mich.

"Index of Training Films"
Business Screen, Inc., 812 N. Dearborn St., Chicago 10, Ill.

"Sound Slidefilm Guide and Complete Source List"
Business Screen, Inc., 812 N. Dearborn St., Chicago 10, Ill.

Catalogs of Distributors

Association Films (Y.M.C.A. Motion Picture Bureau), 347 Madison Avenue, New York 17, N. Y.
Bell & Howell Filmosound Library, 1801 Larchmont Avenue, Chicago 13, Ill.
Brandon Films, Inc., 1600 Broadway, New York 19, N. Y.
Film Center, 25 W. 45th St., New York 19, N. Y.
Walter O. Gutlohn, Inc., 25 W. 45th St., New York 19, N. Y.
Ideal Pictures Corporation, 26 to 34 E. 18th St., Chicago 5, Ill.
New York University Film Library, 71 Washington Square, New York 12, N. Y.
United World Films, Inc., 445 Park Ave., New York 22, N. Y.
Visual Education Service, Inc., 131 Clarendon St., Boston, Mass.

Catalogs can also be obtained from film libraries in colleges, universities, local and state health departments, state department libraries, county and city school libraries, museums and public libraries.

Catalogs of Producers Who Are Also Distributors

British Information Services, Film Division, 30 Rockefeller Plaza, New York 20, N. Y.
Coronet Instructional Films, Coronet Building, Chicago 1, Ill.
Encyclopaedia Britannica Films, Inc., 20 N. Wacker Drive, Chicago 6, Ill.
Federal Security Agency, Public Health Service, Communicable Disease Center, Atlanta, Ga. (Each individual page of the Film Catalog-Utilization Guide is made for instructor use and may be ordered separately.)
The Institute of Inter-American Affairs, 499 Pennsylvania Ave., N.W., Washington 25, D. C.
March of Time, Forum Edition, 369 Lexington Avenue, New York 17, N. Y.
National Film Board of Canada, 620 Fifth Ave., New York 20, N. Y.

Magazines Containing General Information

Audio-Visual Guide—Educational and Recreational Guides, Inc., 172 Renner Ave., Newark 8, N. J.
Business Screen—Business Screen Magazine, Inc., 812 N. Dearborn St., Chicago 10, Ill.
Educational Screen—Educational Screen, Inc., 64 E. Lake St., Chicago 1, Ill.
Film Forum Review—Institute of Adult Education, Teachers College, Columbia University, and the National Committee on Film Forums, 525 W. 120 Street, New York 27, N. Y.
Film News—Film News Company, The Penthouse, 15 W. 38 St., New York 18, N. Y.
Film World—Ver Halen Publishing Co., 6060 Sunset Blvd., Hollywood 28, Calif.
See and Hear—Audio Visual Publications, Inc., 157 East St., Chicago, Ill.
16MM. Reporter—Andrew Publishing Company, Inc., 1819 Broadway, New York 23, N. Y.

Agencies Having Information on Films

The National Publicity Council, 130 East 22 Street, New York 10, N. Y., maintains a collection of more than 1,000 health films exclusive of medical films for use in the elementary schools. Some of the health films are reviewed in CHANNELS.

Many national agencies sponsor films relative to their fields of interest, such as, tuberculosis, heart, cancer, social hygiene, infantile paralysis, blindness, etc.

COÖPERATION IN APPRAISING SCHOOL-CHILD HEALTH

Health Appraisal of School Children is a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. It points out that parents, teachers, nurses, and physicians all have a part to play in keeping the health of school children under continuous appraisal. It defines specifically the part for which each should be responsible.

Among the points stressed are the following: (a) the frequency of routine medical examination of school children may safely be reduced to once every three years provided parents, nurses, and teachers are alert to discover children in need of medical advice or treatment; (b) every school should have a medical adviser, but where physicians' services are not immediately available, an appraisal system conducted by teachers and nurses is much to be preferred to no system; (c) information the teacher has regarding the child should be shared with the doctor and vice versa.

Although the report has little that is really new, it is, nevertheless, important because it represents the common thinking of educators and physicians in what has for many years been a field of controversy and limited accomplishments. If local school authorities would build school health services on the sound foundations here set forth, the field of school health would shortly take its rightful place as one of the most effective parts of the public health program. The report is available from the Ameri-

can Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

SOMETHING NEW OUT OF THE WEST

The Laboratory Section of the Washington State Public Health Association, a new affiliate of the A.P.H.A., has for more than a half year, been putting out a monthly *Laboratory Review*. Mimeographed, this is a brightly written three or four pages of news of interest to laboratory workers throughout the state. The editorial office is the Laboratory of Providence Hospital, Everett, Wash.

A MENTAL HEALTH PROJECT

In more and more communities the tuberculosis association is meeting the challenge of the large contributions to its work by the public through the annual Christmas Seal Sale by expanding its activities to other health problems as well as tuberculosis. One such recent instance is in Ulster County, New York. There an experimental mental health education project is planned by the county tuberculosis and health association with a subcommittee of the County Medical Society serving in an advisory capacity. The project will be opened with a series of 13 15 minute radio dramas entitled, "The Tenth Man" produced by the Mental Health Foundation.

DANNY'S DENTAL DATE

The Colorado State Department of Public Health has just released a film for elementary school dental education entitled "Danny's Dental Date." Produced under the supervision of Dr. Robert A. Downs, Director of the Public Health Dentistry Section, it is a 16 mm. sound and color film with a showing time of 21 minutes.

The first part of the film, done with puppets, shows Danny learning about the types of teeth and various kinds of foods recommended for dental health. Then a human Danny visits a dentist's office where a simple filling is being done while the steps of the process are carefully explained. This is designed to dispel the fear often associated with a visit to the dentist. A super-size tooth brush is used to demonstrate proper brushing technique.

The film is available for circulation in Colorado through the Public Health Library of the State Department of Public Health, 616 Colorado Building. Inquiries regarding the purchase of prints should be sent to the Director of Health Education, Colorado State Department of Public Health, Denver.

KNOW THYSELF—THROUGH HEALTH EXAMINATION

The Cook County (Illinois) Health Department has an exhibit poster and a leaflet entitled "Know Thyself," in encouragement of annual health examinations. "Age is not measured in years but in ability to live," it says. The leaflet has a very interesting graph giving the average life expectancy at birth in various periods of history. Each period is represented by the current mode of transportation of the age, prairie schooner for 1850, steam railroad for 1900, automobile for 1930, etc. An effective and simple piece of health education material.

INTEGRATING PREVENTION AND CURE

In May, 1947, the Maryland State Department of Health appointed a Health Officer Committee on the Coördination of Preventive and Curative Services whose major task was to determine the most effective means of improving and integrating the preventive and curative services of county health departments. The committee's recommendations are presented in an article, "Coördination of Preventive and Curative Health Services," in the June issue of the *Maryland Health Bulletin*. Considerable emphasis is directed toward improving physician and health officer

relationships. The expansion of prenatal clinics, the establishment of new consultation clinics, and the enlargement of laboratory services are among the recommendations. Consideration of the need for providing routine physical examinations for recipients of medical care is also suggested.

ATOMIC BOMBS

What You Should Know About the Atomic Bomb has been prepared by the Surgeon General, U. S. Army, giving medical officers and others involved, basic information about the medical aspects of the atomic bomb and its effects. The pamphlet succeeds in discussing this abstruse subject so that most persons with college chemistry and physics should be able to understand. It is available from the Surgeon General, U. S. Army, Washington, D. C., free of charge.

DEPARTMENT OF ESOTERIC FACTS

The 1946–1947 biennial report of the Duluth, Minnesota, Health Department lists as many incinerator operators as nurses on the department staff. It estimates the city's 1947 population to be about 100,000, one nurse and one incinerator operator per 15,000 population. We won't attempt to explain the significance of this fact except that it hit us in the eye. We won't even say this properly belongs in Credit Lines.

SET OF CANCER POSTERS

The Illinois State Health Department Division of Cancer Control (Springfield) is distributing a set of 15 exhibit size cancer information posters in attention calling colors. If they don't scare the public to death, they should be useful in getting it to pay attention to early signs of possible cancer.

MINNEAPOLIS HEALTH EDUCATION DEMONSTRATION

A demonstration of health education being carried on in two Minneapolis schools, one elementary and one junior high school, is now in its second year. Among the activities is a slumber room in the elementary school which is under the supervision of a committee of mothers who take turns being on duty. Children needing the rest are selected by classroom teachers, nurse, and doctor. Student health councils, school lunches, and safety committees are other devices. Some of the results of the first year's demonstration are summarized in *School Bulletin,* Minneapolis Public Schools, June 14, 1948.

BREADTH, DEPTH, AND LENGTH

Defining the object of geriatric medicine as adding depth and breadth to life, rather than mere length, July-August *Therapeutic Notes,* of Parke, Davis & Company (Detroit 32, Mich.), is a special geriatrics issue. Various articles describe the aging process, indicate the implications of an aging population, the medical and surgical aspects of geriatrics. Not the least valuable feature of the pamphlet is a 72 item bibliography on Geriatrics. *Therapeutic Notes* is distributed without charge to the medical profession.

WORTH ACQUIRING

Motion Pictures and Slides on Public Health—Is the newest film catalog including all the titles in the film libraries of the California State Health Department, California Tuberculosis Health Association, and the California Offices of the Metropolitan Life Insurance Company. Available on request from Bureau of Health Education, California State Health Department, 760 Market St., San Francisco 2.

Baby Book, New York State Department of Health—This attractive little booklet on baby care, pre-natal and post-natal, announces that "if it succeeds only in making you more at ease

with your baby, it will have achieved its purpose." There are suggestions for feeding, clothing, and enjoying your baby, among others. Done in good printing and pleasing pastel colors.

"Medical Care for the Individual" and "The Issue of Compulsory Health Insurance": A Review of the Report of the Brookings Institution by Michael Davis and Dewey Anderson, has been printed for the use of the Senate Committee on Labor and Welfare, at the request of Senators James E. Murray and Claude Pepper, both members of the Subcommittee on Health. Available from the U. S. Government Printing Office, Washington, D. C.

ANNUAL REPORTS

National Tuberculosis Association 1947–1948—In an attractively produced pamphlet, dedicated to Kendall Emerson, M.D., the managing director for 20 years beginning in 1928, this report is a forthright listing of the many areas of activity which this Association carries on. Throughout its pages one finds an awareness of the close relationship between general public health and tuberculosis activities. There is an awareness too of the public responsibility inherent in an agency that, with its locals, annually receives nearly $20 million from many millions of the general public. This annual report is in a sense an accounting of stewardship written so that the millions of supporters may feel a share in the program. The report recommends that:

a. Every person of 15 years or over have a chest x-ray periodically and that present inadequate x-ray facilities be increased.

b. 33,000 additional beds for tuberculosis are needed and many of the present beds should be replaced.

c. A tuberculosis control officer should be on the staff of every state and large city or county health department.

d. More local health units with qualified full time personnel should be created.

e. Tuberculosis activities of WHO should be expanded.

The Regional Hospital Plan: The Second Year's Experience—Because the Rochester (New York) Regional Hospital Plan is one of few such plans yet in operation, the second year's experience of this one should be useful to everyone who has interest in hospital, health center, or health unit development. Council of Rochester Regional Hospitals, 133 East Ave., Rochester 4, N. Y.

Oklahoma Merit System Council Annual Report—For the third successive year Credit Lines calls your attention to this annual report as an excellent graphic illustration of the workings of a merit system. Oklahoma Merit System Council, Oklahoma City.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Racial Variation in Immunity to Syphilis—*By C. N. Frazier and Li Hung-Chiung. Chicago: University of Chicago Press,* 1948. 122 pp. Price, $2.50.

This thoughtful monograph consists of a comparison of the manifestations of syphilis in Chinese patients of the clinic of the hospital of Peiping Union Medical College, and white and Negro patients attending the Johns Hopkins Hospital syphilis clinic. It is carefully documented, and the data are analyzed with the usual statistical tests of significance.

While this study substantiates some of the characteristics of syphilis in the Chinese which have long been accepted on inadequate evidence, such as the frequency of cutaneous and skeletal lesions of both the early and late stages, and the infrequency of general paresis, it quite discredits others, such as the rarity of tabes dorsalis and cardiovascular lesions among the Chinese.

It has long been known that later manifestations of syphilis are more mild in the female than in the male of the white and Negro races. Frazier and Li point out that, with one notable exception, the pattern of late manifestations in both sexes in the Chinese resembles that of the females of the other two races. This is correlatable, in the authors' opinion, with the anthropological evidence of the relative femininity of the Chinese male, according to western standards. This in turn is suggestive of the influence of the female sex hormone in the localization of late syphilitic lesions, rather than the protective effect of pregnancy. The exception to the feminine localization of late lesions in the Chinese was tabes dorsalis. This syndrome appeared in the Chinese with the same frequency as in the white, while the Negro was affected much less frequently than either of the other races. The authors point out that chronic dietary deficiency of the poor of Peiping, which could have led, through deficiencies in the B-complex vitamin, to degenerative lesions of the posterior columns of the spinal cord, or possibly have influenced localization of the spirochete in these tracts. No evidence was adduced to settle this point.

The monograph is recommended as deserving of careful study by those interested in syphilology and as an example of the information to be derived from thorough study of clinic records.

JAMES H. LADE

Dairy Bacteriology—*By B. W. Hammer. (3rd ed.) New York: Wiley; London: Chapman & Hall, Ltd.* 1948. 593 pp. Price, $6.00.

The 18 chapters of easily read type upon a good grade of paper carry 49 figures from photographs having a pertinent relationship to the text; 1,303 references, distributed at the close of each chapter, are representative of topics useful to the student of, or worker in, dairy products. Forty-seven useful pages to the public health officer consider "Spread of disease through milk and milk derivatives." One paragraph on milk-borne rabies with its 4 references provides the information on a question which is not infrequent in presenting itself where rabies, dogs and cattle can get together.

The reviewer experienced the unusual in having his appetite whetted during the reading of a textbook on bacteriology! 73 pages on cheese; 77 pages concerning butter; chapters on ice cream,

milk, cream, cultured milk; all written in a way that assures the reader that care in the compounding of quality ingredients accomplishes a safe and satisfying variety of food.

"Bacterial counts on milk" is a sensible presentation concerning routine and research counts. Included are fair, non-prejudiced comments for and against the plate method and the microscopic method. Differential media for detection of proteolytic, acid-forming, lipolytic or other types of organisms are of special interest in investigations on dairy products.

This book becomes an important addition to the reviewer's library pertaining to public health bacteriology. It is a readable reference rather than simply "a textbook." R. V. STONE, SR.

Report of the Sanitary Commission of Massachusetts 1850—*By Lemuel Shattuck and others. Cambridge: Harvard University Press*, 1948. 321 pp. Price, $4.50.

This historic document, "one of the most remarkable documents—perhaps the most significant single document—in the history of public health," has now been reprinted in a facsimile edition by the Harvard University Press with the coöperation of "The American Public Health Association, the Massachusetts Public Health Association, the Harvard Graduate School of Public Health, the Massachusetts Department of Public Health and the Boston Health Department."

Lemuel Shattuck—1793–1859—was a bookseller and publisher of Boston who was largely responsible among other things for the establishment of the Massachusetts system for the registration of births, deaths, and marriages. The *Report* is now republished for the first time since its original release in 1850. The foreword by Professor Winslow for this facsimile edition is a superb summary of the place which the *Report* has acquired in the century since the appointment of the Commission. The foreword and the *Report* itself should be required reading in every graduate course of public health, in North America. This volume for decades has been a highly prized collector's item, but is now available in a splendid edition for which the Harvard University Press is to be congratulated. It belongs on the shelf of every library. (See symposium on Lemuel Shattuck in this issue.) REGINALD M. ATWATER

Standard Methods for the Examination of Dairy Products—*By the American Public Health Association. (9th ed.) New York: A.P.H.A.*, 1948. 373 pp. 37 illus. Price, $4.00.

The ninth edition of this laboratory manual for standard procedures for the examination of dairy products contains many advantages over previous editions. It has additional values for the laboratory worker.

The reference and cross-reference are of real benefit in enabling the laboratory workers to refer to directions and instructions without doing a lot of unnecessary reading.

The detailed and complete index makes it easier to find what one is looking for.

The introduction of new methods such as the Resazurin procedures for determining extraneous matter in dairy products, methods for detecting pathogenic bacteria in cheese, and methods for the bacteriological examination of stabilizers are worthy contributions.

The absence of highly technical terms makes the volume more interesting to the beginner, enabling him to grasp the meaning of things more readily.

The grouping of material and suggestions useful to administrative officers in one chapter is a real contribution and a decided improvement.

The elimination of repetition in comparison of methods and standards makes

the edition superior to others, enabling the reader to follow through without the necessity of reading some parts over and over again. O. A. GHIGGOILE

A Catalogue of Certified Professional Motion Picture Films—*Presented as a Service of Academy-International of Medicine. (2nd ed.) Topeka, Kans.: Department of Audio-Visual Aids,* 1948. 110 pp.

This catalogue, the second edition, of the Academy-International of Medicine, is a valuable contribution to those within the Academy's Fellowship and the profession at large. To a limited extent it contributes to the general field of documentary films and can well be studied with a view of adaptation, under proper auspices, to a wider audience.

The Audio-Visual Service for Fellows, briefly outlined in the report, provides, free of charge, projector and accessories equipment. It also provides a list of recognized professional motion picture production technicians and laboratory assistants that may be called on for all production requirements or technical aid.

The report announces the following additional services: Electronic-Sound and Motion Pictures, (an entirely new method of producing and projecting motion pictures); Sound and Slidefilm (strip-film) service; Synchronized Sound-on-disc slidefilm projection and accessories service; Photoduplication service, and others.

The catalogue lists films under 38 groupings, beginning with Anatomy and ending with Radiodontia. For the laity (first aid and health education, dental education for school children and adults) about 225 subjects are listed.

Apparently no attempt has been made to evaluate the films, since only the subject and source are given. However, it is stated that the films listed have been approved, authorized, certified, passed or reviewed by a duly organized committee, or sponsored by a professional organization or an institution. These agencies are listed and coded for references.

Of particular interest is the report's announcement that their Audio-Visual Aid Department has completed arrangements for the establishment of a loan library of motion pictures and slidefilms for which subjects are now being selected. The public's suggestions are requested to assist in the selection of preëminent films to form the nucleus of this library.

KENNETH D. WIDDEMER

The Machinery of the Body—*By Anton J. Carlson and Victor Johnson. (3rd ed.) Chicago: University of Chicago Press,* 1948. 639 pp. Price, $4.50.

This elementary textbook of human physiology has become and continues to be a classic in its field. The new book differs from the 2nd edition (1941) in the extensive consideration of the results of wartime experience and research. This material as that of previous editions is approached in the healthy spirit of critical inquiry, entirely free from any trace of the currently popular pose of awed amazement currently popular in dealing with the facts of elementary science. Only in a few sections of the book does the text exceed the demands of an elementary presentation, but frequent footnotes indicate advanced reading on every subject considered. The parts which have received amplification beyond the basic demands of the subject are clearly marked and may be omitted without destroying continuity of subject treatment.

The mechanisms of the human body are covered in 15 chapters, followed by a selected list of references and an index which is unusually complete for a book of this type. The exposition is clear and brief throughout, and style and typography combine to facilitate reading. The subject matter is clarified by the inclusion of over 200 illustra-

tions, most of which are of a simplicity designed to aid understanding. Even the 15 tables used fail to abet confusion in the manner usually achieved in textbooks on science.

Surveying this book as a whole, there is little that one can find to criticise. The occasional relapse into the use of slang, the evanescent idiom of the current moment, is to be regretted. Replacing the precision of conventional forms of English expression with the generalities and changing connotations of the jargon of those who know no better seems to be a doubtful aid to clarity. However, this is probably a personal opinion and in any case this excellent treatment of the basic facts of human physiology sins but slightly in this regard.

DONALD YOUNG SOLANDT

How Laymen Cut Medical Costs—*Public Health Institute. Chicago: Lakeside Press*, 1948. 35 pp.

This small book describes chronologically the remarkable growth of the Public Health Institute of Chicago, a nonprofit venereal disease clinic founded in 1919 to bring to the civilian population some of the procedures developed by the army's educational and medical campaign against venereal disease infection in the first World War. Except for a decline in services during the depression years, the clinic expanded steadily until its eventual transfer to the Medical School of Northwestern University in 1947. The description of the successful campaign waged by the Institute against the prejudice and false modesty which prevailed during the early years of its development is interesting and the results bear witness to the efficacy of health education coupled with available and affordable medical care.

The title may lead one to believe that the book deals with general medical care rather than with the control of venereal disease alone. On several occasions in the text, the accomplishments of the clinic, under voluntary auspices, in treating venereal disease are used as an argument against governmentally sponsored prepayment plans for comprehensive medical care, a conclusion which is unwarranted on the basis of the limited program offered by the Institute. The Institute itself received federal funds later in its history and was able to extend its services to many who could not pay even its low fees for the treatment of venereal disease.

The argument that the Institute points the way to a method of providing low cost comprehensive medical care is largely refuted by the refusal of the Chicago Medical Society of its offer to them to own, manage, and control the clinic, and to extend its field of operation to every disease. In fact, the eventual transfer of the Institute to the Medical School of Northwestern University resulted from the failure to establish a harmonious relationship between the organized medical profession and the clinic.

HENRY B. MAKOVER

New York City's Baby Book—*A Handbook for Parents. New York City: Department of Health*, 1947. 136 pp. Free.

New York City's Baby Book is one of the most practical "guides" for parents that has been written. It covers the first two years of the baby's growth and development. Simple words and short sentences clearly tell parents (father is included) what they want to know. Emphasis is put on the point that babies are individuals and behave as such. The authors will give parents who use the book a sense of relief from tension in the business and pleasure of raising a baby. At the same time there is abundant counsel about the baby's need for love, food, and training. The handbook has combined scientific information with common sense.

DAVID B. TREAT

Occupational Pamphlets—An Annotated Bibliography—*By Gertrude Forrester. New York: H. W. Wilson Company,* 1948. 354 pp. Price, $2.50.

Publications on occupations are coming off the press in increasing numbers. This makes it difficult for librarians, counselors, and job seekers to keep abreast of the vocational literature (mostly pamphlets) prepared by bureaus of vocational guidance, commercial publishers, professional and trade organizations, governmental agencies and others. Gertrude Forrester's *Occupational Pamphlets: An Annotated Bibliography* represents a considerably enlarged edition of her 1946 volume entitled: *Occupations: A Selected List of Pamphlets.*

The new bibliography is divided into two main parts:

1. Pamphlets published in series, arranged alphabetically according to the publisher of the series.

2. An annotated bibliography, which includes essential information on each pamphlet.

Altogether 3,000 pamphlets by 360 publishers are listed. Among them are 236 pamphlets issued by professional, trade, and national organizations. About these, the author says: "The reader may confidently rely on pamphlets prepared by professional organizations with professional codes of ethics. It would be desirable to have more from such sources. . . ." Several of the publications of the Committee on Professional Education of the American Public Health Association are included in the annotated bibliography.

In selecting the pamphlets to be included in this bibliography the author used the following "Criteria of a good occupational pamphlet": 1. authenticity; 2. objectivity; 3. recency; 4. suitability; 5. availability; 6. information not found elsewhere; 7. references to further reading; 8. style; 9. format.

The reader will also find a publishers' directory, a chapter for librarians and counselors on the filing and indexing of occupational pamphlets and suggestions on the use of the bibliography in this useful reference book.

FRANZISKA W. RACKER

Eating for Health—*By Pearl Lewis. New York: Macmillan,* 1948. 121 pp. Price, $2.25.

This book is good reading and worth keeping for reference. College students majoring in foods and nutrition and beginning medical students should find helpful the author's clear and brief explanations, the index, and the carefully selected bibliography.

While the author recognizes that "eating has become one of the main pleasures of life," she is almost too generous to the ordinary person when she states that, "we now eat to maintain health or to regain it." This reviewer doubts seriously whether many persons select food *primarily* to maintain health. However, an increasing number of individuals wish to plan meals intelligently, and this book can help such thoughtful men and women.

The chapter on "Food" is especially well organized and clearly presented. In twenty pages the author explains simply and clearly how food is used by the body, and lists food sources of the vitamins and minerals.

Miss Lewis describes particularly well the structure of the body and the function of its parts. The next chapter, "Nutritional Processes," is more difficult reading because of the necessity for using technical language. This, however, is the chapter which the college student may find most helpful.

In the chapter labeled "Dietary Plans," dietary and meal plans for each age group are outlined. Height-weight tables for children as well as for men and women are a convenient addition to the book.

The last chapter, "Foods for Good

Nutrition," considers classes of foods. Not only is the nutritive value pointed out but appropriate cookery methods, season and good storage practices are indicated.

The title of this book, "Eating for Health," is not a glamourous one nor, we fear, will it appeal to the ordinary man who reads only as he browses. Those interested in health, however, will like the title. A number of those who have been led astray by faddists will be attracted to it and will benefit along with many other people from reading this new book by Pearl Lewis.

PAULINE MURRAH

Basic Principles of Ventilation and Heating—*By Thomas Bedford. London: H. K. Lewis & Company, Ltd.*, 1948. 401 pp. Price, 25s. net.

The scope of this book is wider than might be suggested by its title. Its first nine chapters deal with the "basic principles" of the relations of the thermal environment to the health and comfort of man and its last twelve chapters with the "basic principles" of the art of air-conditioning. Dr. Bedford has an unusual familiarity with the literature and practice on both sides of the Atlantic, combined with excellent judgment and discrimination. The first part of the volume tells the engineer what he should know about the fundamental physical and physiological problems involved, while the second part tells the health expert what he needs to know about the work of the heating and ventilating engineer. The book is strongly recommended to both health officers and sanitarians as the best brief summary of this field of public health now available.

C.-E. A. WINSLOW

Health Services in England—*By R. C. Wofinden. Baltimore: Williams & Wilkins*, 1947. 186 pp. Price, $2.50.

Health Services in England was awarded a prize for ". . . the best essay on the treatment of the sick poor of this country and the preservation of the health of the poor . . ." In true British fashion neither the title nor the award gives one any indication of the scope of the book nor of the genius of the author in his treatment of the material. Dr. Wofinden has accomplished one of the most difficult feats in writing, that of compressing a mass of material without losing its vividness or its significance. The growth and development of the various health services in England come alive in this small book.

The introduction summarizes the growth of the health services in England from the 16th century to the beginning of the last war, including a number of acts dealing with social conditions as well as those concerned primarily with health. Throughout the whole book the author shows a keen appreciation of the interrelationship of social and economic conditions with health conditions. Following the introduction, the book is divided into chapters on The Treatment of the Sick, The Preservation of Health, Achievements of the Health Services, The Future, and a Postscript on the National Health Service Act of 1946.

In the space of three pages, Dr. Wofinden describes the growth of the general practitioner services, including the district medical service, and introduces philosophical points pertaining to treatment of the sick under the various schemes that have been developed since the first Poor Law Amendment Act of 1834. He points out some of the particularly successful schemes such as the one worked out in the Highlands and Islands of Scotland. He then describes the formation and development of the nursing service and calls attention to crucial problems of the present day in relation to the survival of voluntary organizations.

Under "Achievements of the Health Services," the author gives due consider-

ation to the many factors in the educational and social fields which have influenced the improvement of health of the people of England along with advancements in medicine and improvement in the health services.

"The Future," Chapter V, was written before the passage of the 1946 National Health Act and gives a good background for the reactions which the present Act has met. It also raises some nice points of philosophy regarding medical care which should interest American readers.

A postscript has been added describing briefly the provisions of the National Health Service Act of 1946. A very clear summary of its main provisions is given and there is some discussion of the controversial features. The author points out that curative and preventive medicine which for some time have been bound together in England will be separated under the new Act, and raises the question as to how close liaison is to be maintained. He mentions a few of the objections of the medical profession to the Act but as a health officer he is more concerned with the possible effect the Act will have on preventive medicine in Great Britain.

The reviewer is tempted to reproduce the whole book in the review, but as that is impossible, recommends that the book be read by all those interested in health services in England and their implications for health services everywhere. It is also recommended reading for those who take delight in a skillfully constructed piece of writing in which crucial facts have been selected and woven together with thought provoking comments. MARGARET G. ARNSTEIN

Frontier Doctor—*By Samuel J. Crumbine. Philadelphia: Dorrance,* 1948. 284 pp. Price, $3.00.

Public health as a new profession needs the authentic record of its pioneers that the traditions may be soundly based. None of our older generation has had a more colorful career than Samuel J. Crumbine, as witness the stories about his original campaigns against spitting, against the fly, and the common drinking cup. Even the *New Yorker* has chosen him to be profiled.

This combination of a dramatic career and the ability of a raconteur is rare. The story is very readable and revealing of the early days in Pennsylvania and Kansas. It is sure to fire the imagination of young people and should be on the reading shelves in high schools and colleges for recruiting purposes. Those already in public health will be grateful to Dr. Crumbine for the person he is and for the fascinating story he has told.

REGINALD M. ATWATER

The Diabetic's Handbook—*By Anthony M. Sindoni, Jr., New York: Ronald Press,* 1948. 194 pp. Price, $3.00.

With the publication of this book, another is added to the extensive list of handbooks designed to teach the diabetic how to care for his disease and cooperate with his physician. This handbook's range of topics is equally as extensive as that of several others recently reviewed; its scope is wider than that of some other handbooks on the same subject. The presentation is unusual in its emphasis upon the prevalence of diabetes and some of its public health aspects.

In arrangement, the book follows a logical sequence. The first section, questions and answers, might serve as a survey of the substance of the whole book. Several observations on this section seem worthy of comment:

1. The emphasis on routine examinations for diabetes, in the absence of symptoms, is valuable in its implications for general control measures (p. 4).

2. From experience in testing large groups of normal individuals, we must take exception to the statement that the blood sugar of normal persons "never" rises above 80 to

120 mg. per cent, even after eating (p. 3).

3. The figure on the number of living diabetics is understandably hazy; more prevalence studies will allow a better estimate.

4. If all of us were able to concur entirely with the author's blame of "indiscreet dietary habits" for the large number of diabetics, the chances for prevention would be much more assured (p. 6). At any rate avoidance of over-eating is a good hygienic principle.

Generally speaking, this handbook lacks the compactness and brevity as well as the excellent illustrations of practical techniques that contribute to the appeal of some other manuals. However, its thorough treatment of the essential phases of diabetic self-care and its easy reference arrangement make a contribution to diabetic literature.

HUGH L. C. WILKERSON

Insect Pests—*By William Clunie Harvey (2nd ed.). London, New York: Hoeber,* 1948. 347 pp. 27 illus. Price, $5.00.

This handbook is written especially for "authorities and individuals who have the responsibility of insect pest control placed in their charge."

It is divided into two sections. In the first is described the life history, bionomics, and control of insect and other arthropodal species which cause or carry disease, or are household or economic pests. The second and larger part deals with principles and practices of disinfestation in homes, commercial establishments, ships, moving vans, furniture, etc. Specimen forms, records, and propaganda leaflets are shown in the appendix.

While of general applicability in the field of insect control, this book is designed primarily for British supervisors and operators. Thus it deals with pest problems of England, with types of English construction, English brands of insecticidal equipment and materials, and with English pest control laws and regulations.

The volume contains some inconsistencies and errors. On page 68, it is stated, relative to mosquitoes, that "in the case of some species, the habit of blood-sucking is said to be common to both males and females." Five pages later, the authors claim that "The most important characteristic of the entire mosquito family is that only the females of all species suck blood. . . ." Wherever the scientific designation of the oriental rat flea occurs in the book—even in the index—the specific name is misspelled.

The chapter on "Gaseous Fumigants" is excellent in coverage and detail. DDT and Gammexane, the latter a British product, are treated together in another chapter—but chlordane, toxaphene, and other new insecticides are not mentioned. The book is indifferently illustrated. There is an index but no bibliography.

JUSTIN M. ANDREWS

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCE OR RETREAT FOR PRIVATE FAMILY SERVICE. Bertha Reynolds. New York: United Office and Professional Workers of America, CIO. 32 pp. Price, $.50.

ANESTHESIA—PRINCIPLES AND PRACTICE. Alice M. Hunt. New York: Putnam, 1948. 142 pp. Price, $2.60.

THE BASIS OF CHEMOTHERAPY. Thomas S. Work and Elizabeth Work. New York: Interscience, 1948. 435 pp. Price, $6.50.

BLOOD'S MAGIC FOR ALL. Public Affairs Pamphlet No. 145. Alton L. Blakeslee. New York: Public Affairs Committee, Inc. 32 pp. Price, $.20.

BLOOD CLOTTING AND ALLIED PROBLEMS. Transactions of the First Conference February 16–17, 1948. New York: Josiah Macy, Jr. Foundation, 1948. 179 pp. Price, $3.25.

THE CHILD IN HEALTH AND DISEASE. Clifford R. Grulee and R. Cannon Eley. Baltimore: Williams & Wilkins, 1948. 1006 pp. Price, $12.00.

CORNELL CONFERENCES ON THERAPY. Vol. III. Edited by Harry Gold. New York: Macmillan, 1948. 337 pp. Price, $3.50.

THE CREATIVE NURSERY CENTER. Winifred Y. Allen and Doris Campbell. New York: Family Service Association of America, 1948. 171 pp. Price, $2.75.

EXPERIMENTAL IMMUNOCHEMISTRY. Elvin A. Kabat, and Manfred M. Mayer. Springfield, Ill.: Thomas, 1948. 551 pp. Price, $8.75.

FACTORS REGULATING BLOOD PRESSURE. Transactions of the Second Conference January 8–9, 1948. New York: Josiah Macy, Jr. Foundation, 1948. 170 pp. Price, $2.75.

HOW TO LIVE LONGER. Justus J. Schifferes. New York: Dutton, 1949. 243 pp. Price, $3.00.

HYGIENE, MANUAL OF PUBLIC HEALTH. J. R. Currie and A. G. Mearns (3rd. ed.). Baltimore: Williams & Wilkins, 1948. 695 pp. Price, $9.00.

INDUSTRIAL HYGIENE AND TOXICOLOGY. Vol. I Frank A. Patty, Editor. New York: Interscience, 1948. 517 pp. Price, $10.00.

AN INTRODUCTION TO PHYSICS IN NURSING. Hessel Howard Flitter. St. Louis: Mosby, 1948. 179 pp. Price, $3.25.

IRREGULAR DISCHARGE: THE PROBLEM OF HOSPITALIZATION OF THE TUBERCULOUS. Washington, D. C.: Superintendent of Documents, U. S. Gov. Ptg. Office, 1948. 64 pp. Price, $.20.

A PROPOSED HEALTH FILM PROGRAM FOR AMERICA. Prepared by The World Today, Inc., Film Producers. New York: The World Today, 1948. 35 pp. Price, $1.00.

PSYCHIATRY FOR THE MILLIONS. Benzion Liber. New York: Frederick Fell, 1949. 297 pp. Price, $2.95.

PSYCHOSOCIAL DEVELOPMENT OF CHILDREN. Irene M. Josselyn. New York: Family Service Association of America, 1948. 134 pp. Price, $1.75.

SANITATION IN SOUTH AFRICA (Applicances Illus.) John H. Moore. Cape Town, So. Africa: Jata & Co., 1948. 425 pp. Price, 35 s.

TEXTBOOK OF ATTENDANT OR PRACTICAL NURSING. Katherine Shepard (3rd ed.). New York: Macmillan, 1948. 386 pp. Price, $4.25.

YOUR COUGHS, COLDS AND WHEEZES. Joseph D. Wassersug, New York: Wilfred Funk, 1949. 268 pp. Price, $2.95.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

ATLANTA, GA. HEALTH DEPARTMENT. Annual Report 1947. J. F. Hackney, Director of Public Health. Atlanta, Ga.: City Health Department. 27 pp.

BOSTON'S HEALTH IN 1947. 67th Annual Report. John H. Cauley, Commissioner. Boston, Mass.: City Health Department, 1948. 60 pp.

BRITAIN'S HEALTH IN WAR AND PEACE. Reference Division I.D. 872, August, 1948. New York: British Information Services.

BALTIMORE, MARYLAND. 133RD ANNUAL REPORT OF THE DEPARTMENT OF HEALTH, 1947. Baltimore, Md.: City Health Department. 343 pp.

FORECASTS OF THE POPULATION OF THE UNITED STATES, 1945–1975. U. S. Department of Commerce, Bureau of the Census. Washington, D. C.: Superintendent of Documents, U. S. Gov. Ptg. Office. 113 pp. Price, $.45.

MARYLAND WATER POLLUTION CONTROL COMMISSION. First Annual Report 1947. Baltimore, Md.: Water Pollution Control Commission.

MINNESOTA LEGISLATIVE RESEARCH COMMITTEE. County Unit Health Plan. Publication No. 14. Minneapolis, Minn.: State Department of Health, 1948. 25 pp.

ORANGE, N. J., CITY DEPARTMENT OF HEALTH. Annual Report 1947. 43 pp.

PALO ALTO'S HEALTH IN 1946 AND 1947. Palo Alto, Calif.: City Department of Health. 44 pp.

PLAINFIELD, N. J., ANNUAL REPORT OF THE CITY FOR 1947. Plainfield, N. J. City Department. 68 pp.

A PLANNING PROGRAM FOR THE CAPITAL OF COSTA RICA. Anatole A. Solow. Washington, D. C.: Pan American Union, 1948. 61 pp.

PUBLIC HEALTH IN NEW YORK STATE—1946. 67th Annual Report of the State Department of Health. Albany, N. Y.: State Department of Health. 101 pp.

SPRINGFIELD, MASS. 66TH ANNUAL REPORT OF THE DEPARTMENT OF PUBLIC HEALTH 1947. Springfield, Mass.: City Department of Health. 48 pp.

SURVEY REPORT — DEPARTMENT OF PUBLIC HEALTH — PITTSBURGH, PA. Washington, D. C.: Public Health Service, 1948. 385 pp.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

MAN requires food to maintain life, but food is not easily obtained. For the great majority of the world's population the Biblical injunction, "In the sweat of thy face shalt thou eat bread," is still true. When crops fail or war breaks out this precarious situation is easily upset, resulting in malnutrition, famine, and disease. The recent war necessarily turned the attention of lay and medical groups to problems of food and nutrition. Numerous publications in the medical and public health literature attest this interest.

DIET OF NORWEGIAN FAMILIES DURING 1942–1945 [1]

From 1942 to 1945 Axel Strøm investigated the diets of families connected with two industrial concerns in Oslo (Electric Bureau and Freia) as well as several families in Arendal and Hisøy. At the Electric Bureau, five different series were studied from January, 1943, to May, 1945. At Freia there were three investigations from December, 1942, to May, 1944, and during November-December, 1943, one investigation was carried out in Arendal and Hisøy. A total of 102 families participated in these studies. For the most part these families were small and had few children. In Arendal and Hisøy two orphanages were also included in the investigation.

Each investigation period lasted 14 days. During this period a daily account was kept of the food purchased and received, as well as of the food taken out of the house. The food supply was weighed at the beginning and at the end of each period. Cathcart and Murray's scale was used for computation. Atwater's figures, 4-9-4, were used in calculating the caloric intake. Two per cent was allowed for waste in housekeeping, except in the orphanages where wastage was fixed at 10 per cent.

By comparison with pre-war conditions, the diets of the investigated families were characterized by a marked decrease in the consumption of meat, whole milk, cream, cheese, eggs, margarine (but not butter), fruit, berries, sugar, and coffee. An increase was noted in the consumption of skimmed milk, though this was not enough to compensate for the drop in the consumption of whole milk. Cereal consumption was somewhat increased, while that of potatoes, fresh vegetables, and fish was considerably greater.

In the various investigation series the mean caloric values of the diets were found to be 3,046, 3,206, 2,913, 2,905, 2,900, 2,750, 2,708, 2,708, 2,603, and 2,565 calories. The total average was 2,849 calories. Except for the first two series, all these figures are lower than those for self-supporting Norwegian families before the war.

The protein content of the diets varied between 82 and 109 gm., with an average of 93 gm. The fat content varied from 61 to 82 gm. and averaged 71 gm. The range of variation for carbohydrates was from 372 to 482 gm. with a mean of 429 gm. In comparison with previous Norwegian studies, the intake of fats was low, while that of protein and carbohydrates was satisfactory. The low caloric content of the diets already noted was attributed essentially to an inadequate fat intake.

In the various series the gross daily calcium content ranged from 1.12 gm.

to 1.53 gm. per man value, with an average of 1.32 gm. for the total series. The mean intake of phosphorus in all the investigation series was 1.95 gm. per man value per day, and varied between 1.74 and 2.22 gm. The iron content varied from 12.90 to 16.28 mg., with a mean of 14.46 mg. These values are regarded as satisfactory for calcium and phosphorus, but too low for the intake of iron.

The gross vitamin intake per man value per day was:

Vitamin A: average, 4,911 I.U.; lowest, 2,011 I.U., highest 10,029 I.U.

Vitamin B: average, 720 I.U.; lowest 616 I.U.; highest, 848 I.U.

Vitamin C: average, 98 mg.; lowest, 40 mg.; highest, 193 mg.

Vitamin D: average 1,107 I.U.; lowest, 525 I.U.; highest, 1,879 I.U.

The author considers the average vitamin consumption satisfactory, but points out the vitamin intake differed widely with various families, and it is more than likely that some families had less than the requisite amount. This applies particularly to vitamin A.

Strøm is aware that the number of families involved in these studies was small, yet he feels that the findings give a rather good picture of the diet of families in Oslo during the war. Loss of weight was frequent, but clearly defined deficiency diseases were rare. There was, however, a certain tendency to anemia, and a mild degree of night blindness prevailed.

THERESIENSTADT ANEMIA [2]

More drastic effects of malnutrition appeared among concentration camp inmates. Pick and Salus describe an unusual kind of anemia observed in the Theresienstadt concentration camp. Chronic malnutrition prevailed in the camp and the authors regard chronic protein deficiency as the most important factor in the causation of this anemia. The condition developed spontaneously or following other types of anemia. In contrast to other deficiency anemias, such as hypochromic anemia due to lack of iron or hyperchromic anemia due to deficiency of the antianemic factor, the Theresienstadt anemia was characterized by orthochromia. The authors suggest protein deficiency anemia as the most suitable name for the condition.

NUTRITIONAL VALUE OF BARK [3]

In time of famine desperate people turn to unusual sources of nourishment. The practice of eating bark bread, that is, bread mixed with the bark of Coniferae, has prevailed in the more remote northern areas of Finland for hundreds of years. During the famines of 1695–1697 and 1867–1868, hunger edema was reported to be widely prevalent in southern Finland, but was apparently absent in the north of the country. Similarly during 1918, hunger edema was common throughout Finland except in those northern areas where bark bread was eaten. From this evidence Adlercreutz infers that the bark of Coniferae may be of nutritional value and suggests further study.

DIET AND DISEASE IN THE SUBARCTIC [4]

A provocative note on the relation between diet and disease is furnished by A. C. Duncan who has spent 14 years providing medical care for the 1,500 to 2,000 people who make up the population of Dawson City, Yukon, and the surrounding area. As this population is practically isolated, it has been virtually impossible to obtain medical attention from some other professional source.

Although the population contains some 350 children under the age of 14, Duncan states that he has not seen any cases of acute rheumatic fever. Similarly, he claims not to have seen nephritis in any of its stages. Yet he reports a normal incidence of acute tonsillitis and upper respiratory infec-

tions. Duncan feels that these observations are in some way related to the diet commonly consumed by the residents. The character of the diet is determined by the geographical situation of the area. Foodstuffs such as sugar and cereals that must be transported over considerable distances are expensive and not easily available. On the other hand, meat (caribou, moose, rabbit), and fish can be obtained locally in almost unlimited amounts. As a result the diet of the inhabitants contains a large amount of animal protein.

While one may be sceptical of the author's attempt to link diet and disease, the facts which he reports—the absence of rheumatic fever and nephritis in this population—certainly merit attention.

THE HYGIENE OF MILK IN FRANCE

In certain European countries, which in the past have tended to overlook the problems of food sanitation, the present food shortage has led to a recognition that these questions require urgent attention. In France the hygiene of milk has recently been a focus of critical discussion. Thieulin[5] has given a general analysis of the problem, pointing out that its solution depends on a variety of social, economic, and technical factors. Thus the public must be educated to demand milk produced under hygienic conditions and of good quality, and the producer must be given a premium for quality production. At the same time, the consumer must also be prepared for the possibility of a resulting price increase. More specifically the problems of bovine tuberculosis and streptococcal mastitis must be solved. For this a sanitary inspection system is needed.

Guittonneau[6] points out that some improvement had already set in prior to World War II. A government decree of April 26, 1939, had incorporated demands raised at the Hygiene Congress of 1937. These included registration of the temperature of pasteurization, absence of pathogenic organisms, a maximum of 100,000 organisms per ml. of liquid milk, and that milk be sold only in sealed bottles. The war and the German occupation reversed this trend and led to a deterioration of such supervision as had existed. As soon as liberation was a reality, steps were taken to remedy the unhygienic and inferior quality of the French milk industry. In this connection Guittonneau insists on the employment of the phosphatase test, testing for *B. coli*, and a count of the total number of organisms. Of equal importance is the problem of seeing that bottles are disinfected and the milk adequately refrigerated.

J. Verge[7] presents some interesting data on the presence of tubercle bacilli in milk and milk products. He states that in France human tuberculosis of bovine origin is rare. Thus, among 1,726 cases of tuberculosis 94.9 per cent were of human type, 3.24 per cent were bovine, and 1.85 per cent were of indeterminate type. Nevertheless, because the tubercle bacilli are eliminated in transitory fashion, it is absolutely necessary that the milk be pasteurized and barns and stables supervised. In this connection Verge reports on the testing of milk from human and bovine tuberculous sources. Among female patients the milk of 10–12 per cent was found infected, and in cows 7.78 per cent. Tubercle bacilli have also been found in cream, butter, and cheese, although not in dried milk. It has been observed that the bacilli can effectively resist temperatures of 60°–63° in the manufacture of condensed milk. Verge emphasizes the obvious need for strict enforcement of pasteurization and sanitary inspection.

THE PROBLEM OF BREAD IN BRAZIL[8]

Though Brazil did grow wheat in the past, cultivation of this grain does not

occupy an important place in Brazilian agriculture at present. Because of the international trade situation not much wheat is imported. At the same time large numbers of the Brazilian people, according to Da Silva Mello, live in a state of chronic malnutrition. For this reason he has devoted himself to the problem of producing a bread of superior quality utilizing materials grown in Brazil.

Bread making experiments have been carried on by Mello, using wheat mixed with rice, maize, or manhioca flour. Recognizing the value of skimmed milk, bread has been made with 15 per cent rice flour added to wheat, and skimmed milk substituted for water. The result has been bread of fine quality. Brazilians, however, are not accustomed to the flavor of such a bread. Bread baking experiments have also been made with other flours, for example, from Cajú-chestnuts, Pará chestnuts, and soya beans. Nevertheless, the problem of providing a good nutritious bread which is not too expensive has not been solved.

De Cunto[9] discusses the nutritional significance of the soya bean, pointing out that it is a product of national importance in Brazil. Its nutritive value is due in considerable measure not alone to its protein content but rather to its glycine content. It has been shown that by mixing 10 per cent soya flour with corn, a tasty bread of higher nutritive quality can be obtained. This flour mixture (in a 50 per cent proportion) has also been used for biscuits with favorable results.

FOOD AND NUTRITION IN VENEZUELA[10]

Early in 1948 Velez Boza published an interesting and comprehensive study on the nutrition of the Venezuelan people. The subject is considered from a variety of viewpoints: historical, statistical, clinical, and biochemical. Boza deals with food production in the country and gives a classification of native and imported vegetables that are of value as food resources. There is also a complete compilation of all the Venezuelan laws from 1589 to 1945 that have been concerned with food and nutrition. Boza calls attention to the fact that the nutritional problems of the Venezuelan population vary considerably depending on the geographic area, whether it is the coastal zone or the Andean region. In all areas, however, there is need for guidance and education in nutrition. Furthermore, there is urgent need in Venezuela for the improvement of food technology, and for the provision of adequate transportation facilities. At the same time the government must provide the necessary credits for agriculturists to expand their activities.

BREAD IN CHILE[11]

The problem of bread is a matter of concern also in Chile. At its annual meeting in November, 1946, the Nutrition Society of Chile urged the need for a policy aimed at improving the quality of bread. Recognizing that improvement of bread must start with improvement of the grain from which it is made, the society called upon the Ministry of Agriculture to see that only the best varieties are cultivated. At the same time the milling industry was urged to carry on research in order to improve methods of extraction and flour production. The society likewise recommended a program of bread enrichment with vitamins. As in Venezuela, considerable attention is paid to the problem of distribution and price regulation. Finally, the society concluded that the sanitary conditions of the bread baking industry left much to be desired, and that the social condition of the workers in the industry was lamentable. Action by government, industry, and the unions was urged to remedy these conditions.

PELLAGRA IN RUMANIA

Pellagra remains one of the most serious social diseases in Rumania.[12] It was first mentioned in Rumania by Vârnav in 1836, and later by Caillat (1847), Theodori (1858), and Felix (1859). Nitzulescu points out that official figures do not give a complete picture of the prevalence of the disease. In 1945, according to the official figures, 10,302 cases were reported, but there were probably two to three times as many. He urges the need for better and more complete statistical information.

Nitzulescu also points out that the control of pellagra requires action along two fronts, one, social, and two, scientific. Social action is necessary for prophylaxis and therapy of the problems created by the poor nutrition of the peasants. In this part of the program an intensive health education campaign with emphasis on nutrition is an absolute necessity. The scientific side of the program should be based on research centers which would deal specifically with rural nutrition and its problems. These would contain sections for social, clinical, and biochemical research.

REFERENCES

1. Strøm, Axel. Examination into the Diet of Norwegian Families during the War Years 1942–5. *Acta med. Scandinav.*, Supplementum CCXIV, 1948. 47 pp.

2. Pick, A., and Salus, F. Klinik und Pathogenese der sogenannten Theresienstädter Anaemie. *Acta med. Scandinav.*, 129:389–409, 1947.

3. Adlercreutz, E. Om hypovitaminoser. *Odontologisk Tidskrift*, 55:50–70, 1947.

4. Duncan, A. C. Diet and Disease in the Subarctic. *Lancet*, 1947, pp. 919–921.

5. Thieulin, G. Conditions fondamentales de la qualité hygiènique du lait. *Rev. de path. comparée et d' hygiène générale*, 47:51–61, 1947.

6. Guittonneau, G. La question du lait pasteurisé en France. *Rev. de path. comparée et d'hygiène générale*, 47:61–64, 1947.

7. Verge, J. Sur la présence du bacille de Koch dans les laits et dans les produits dérivés de lait. État actuel des recherches effectuées en France. *Rev. de path. comparée et d'hygiène générale*, 47:37–51, 1947.

8. Mello, A. da Silva. O Problema do Pão no Brasil. *Problemas de Alimentação no Brasil*, Oct., 1946.

9. De Cunto. Utilização de soja na alimentação do Brasileiro. *O Hospital*, 33:189–201, 1948.

10. Boza, Fermin Velez. La Alimentacion y la nutricion en Venezuela. *Revista de Sanidad y Assistencia Social*, 13:1–183, 1948.

11. El Problema del Pan. *Bol. Med. social*, 14:97–160, 1947.

12. Nitzulescu, J. État actuel des recherches sur la pellagre en Roumanie. *Bull. Acad. méd. Roumanie*, 20:25–36, 1947.

13. Nitzulescu, J. Esquisse d'un programme d'étude et de lutte contre la pellagre en Roumanie. *Bull. Acad. méd. Roumaine*, 20:202–209, 1947.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

"It looks as if the Federal Government Will Go Ahead"—An illuminating summary of "The Nation's Health" appears, of all places, in the British Medical Journal. With it is an editorial which views, with cool objectivity, our multi-million dollar scramble to block that "communistic" threat to our American institutions. The heading above is a quotation from the summary.

ANON. Medicine in the U. S. A. Report to Mr. Truman. Brit. M. J. 4584:869 (Nov. 13), 1948.

Lifeblood, She Calls It—Webster says that to evaluate is to ascertain the value (worth) of; to appraise (to judge as to quality and productiveness). Doesn't evaluation imply the use of more nearly exact measurements than is suggested by the phrase, critical examination? If we could just get a critical examination of our health educational ways and means, we'd be moving ahead. How one provincial health department does it is the burden of this useful paper.

BEARD, K. Evaluation of Health Education

Materials. Canad. Pub. Health J. 39, 11:440 (Nov.), 1948.

A Fighter Who Hated To Fight—It will do your heart good, even if it doesn't add a nickel to your market value, to read this warm but unpretentious story of one of the pioneering bacteriologists, a story lovingly put together by his son.

CONN, H. J. Professor Herbert William Conn and the Founding of the Society. Bact. Reviews 12, 4:275 (Dec.), 1948.

Amebiasis in Archangel—As a concept, tropical medicine has changed from a group of peculiar diseases to an appreciation that it is just general medicine localized.

GORDON, J. E., and AUGUSTINE, D. J. Tropical Environment and Communicable Disease. Am. J. M. Sc. 216, 3:343 (Sept.), 1948.

Rough on Rats' Fleas—If we won't get rid of rats, we can at least deprive them of most of their fleas (with DDT) and thus lessen the chance of human typhus infections. This paper tells how to do it.

HILL, E. L., and MORLAN, H. B. Evaluation of County-Wide DDT Dusting Operations in Murine Typhus Control. Pub. Health Rep. 63, 51:1635 (Dec. 17), 1948.

Institute—"Arizona is a Wonderful State!" It says so, right here, at the beginning of this paper which gives you excerpts from the script of "Molly Gets Well," a skit that entertained while it informed audiences about the care of tuberculosis. Movies, lectures and demonstrations also were used as visual aids at this institute.

HORKAVI, H. Dramatics in Health Education. Pub. Health Nurs. 40, 12:597 (Dec.), 1948.

Industrial Health Is Public Health—Local health departments have participated less in industrial hygiene than in other phases of health administration. What the local health officials' responsibilities are in this highly important field is set forth in all too meager detail.

JONES, J. L., and FARNER, L. M. Coordination of Industrial Hygiene With the General Health Field. Canad. Pub. Health J. 39, 11:433 (Nov.), 1948.

Round and Round It Goes—Four of these dozen papers have to do with the public health aspects of the control of dental caries. The others are of the "What causes that?" variety. If you are at all interested in this public health problem of the first magnitude, then you will look up the four. You'll discover no easy panaceas.

KESEL, R., *et al.* Symposium on Dental Caries by the AAAS Subsection on Dentistry. J. Am. Dent. A. 37, 4:381 (Oct.), 1948.

That $32,000 Smile—There is no secret to saving teeth. It is as simple as A B C. These are the writer's very words. The rub, of course, is putting the A B C's into administrative practice—that, and productive dental health education. Please read!

LEVINSON, C. A. The Dentistry of Tomorrow. Pub. Health Nurs. 40, 12:610 (Dec.), 1948.

Feeling Creatures—This highly successful effort to point out areas of emotional friction that "inhibit fruitful patient-nurse relationships" will be good for you whether or not you append an R. N. to your name. Never forget the *person* at the receiving end of the needle or the feeding-formula bottle, this psychiatrist urges; and his good advice applies to whatever substitute for the needle or the bottle you hold in your work-a-day hands.

MANN, J. Human Relations in Public Health Nursing. Pub. Health Nurs. 40, 12:583 (Dec.), 1948.

To Be Read for the Fun of It—Much of this debate on the motion "that the practice of instructing the layman in the nature and treatment of disease is being carried to excess," I

found provocative and about as supportive of one's pet convictions as are most debates. It was asserted that in the two countries given to excesses of health education (one of them the U. S. A.), there the quacks and nostrum vendors flourish as the green bay tree. A vote at the close gave a tiny majority against the motion.

O'DONOVAN, W. J., *et al.* Should a Doctor Tell? Brit. M. J. 4586:952 (Nov. 27), 1948.

Difficult Matters of Judgment—English writers put things so felicitously! This nutritionist concludes: at the lowest level we must accept "carrots for beauty," at the second level we must tolerate "body builders, energizers and protectors," at the level of the thoughtful citizen—one who can grapple with rational explanations—lasting progress is slowly being achieved. Nice, isn't it?

PYKE, M. Visual Aids to Nutrition Education for the Public. Nutrition Rev. 6, 12:353 (Dec.), 1948.

The Mothers Like It, He Says—Another of those timetables of immunizations. This one sharpens the needle for the infant victim once each month during the first ten, then a half dozen more jabs are given between ages one to six while the child is still unable to fight back.

SAKO, W. Practical and Immunologic Aspects of Pediatric Immunizations. Pediatrics 2, 6:722 (Dec.), 1948.

About Studying Work Distribution—Work simplification means taking the "WORK" out of work. It doesn't mean speed-up. This discussion, for the benefit of the girls who manage institutional diet kitchens, has a lot in it for women or men who manage laboratories, inspection forces, statistical record rooms and other public health administrative services. Open memo to editorial board: how about having experts from other fields than ours give us some how-to-do-it hints, like this one.

SCHMID, M. D. Work Simplification—Making the Job Easier. J. Am. Dietet. A. 24, 12: 1062 (Dec.), 1948.

Respectfully Called to Your Attention—Among all the other shortages in the nursing profession there continues to be a shortage of qualified teachers and supervisors. That bogey, which the viewers-with-alarm conjure up, the over-educated nurse, is likely to remain a figment of their agitated imaginations for many moons to come, so this reporter alleges—because many of the existing schools haven't the ability to over-educate her.

VREELAND, E. M. Some Qualitative and Quantitative Factors in Nursing Education. Pub. Health Rep. 63, 52:1667 (Dec. 24), 1948.

"Country-Cousin Attention"—There is no organized instruction in preventive medicine in twenty-eight medical schools and most of these do not consider such emphasis as important. A portrait of the medical school of the future is painted.

WEINERMAN, E. R. Medical Schools and the Quality of Medical Care. New England J. Med. 239, 22:810 (Nov. 25), 1948.

ASSOCIATION NEWS

REVISION OF THE REPORT ON COMMUNICABLE DISEASE CONTROL UNDER WAY

Preceding the 76th Annual Meeting of the Association in Boston, the subcommittee on Control of Communicable Diseases met for two days to agree upon changes for the 7th edition of the manual *Control of Communicable Diseases*, scheduled for reissue in 1950.

The committee of 14 members is headed by Haven Emerson, M.D., who has been its chairman for the third of a century since its creation in 1916. The committee has the collaboration of several national and international professional organizations and of the British Ministry of Health. The latter was represented at the Boston meeting by Dr. A. H. Gale, Medical Officer, British Ministry of Health and Dr. J. R. Peters, Chief Medical Deputy Officer, Department of Health for Scotland. WHO was represented by Dr. Frank A. Calderone, Director of the New York Headquarters Office; the Pan American Sanitary Bureau by its Director, Dr. Fred L. Soper; the U. S. Department of National Defense by Dr. Joseph E. Smadell, Director of the Army Medical Laboratory, Washington, D. C.; the American Academy of Pediatrics by Dr. Archibald L. Hoyne, Medical Superintendent of the Chicago Contagious Disease Hospital.

The members of the committee preparing the 7th edition are:

Gaylord W. Anderson, M.D., Director, University of Minnesota School of Public Health
J. A. Bell, M.D., Senior Surgeon, U. S. Public Health Service
Donald T. Fraser, M.D., Professor of Hygiene and Preventive Medicine, University of Toronto
Alexander A. Gilliam, M.D., Director, Epidemiology Division, National Cancer Institute
John E. Gordon, M.D., Department of Epidemiology, Harvard School of Public Health
William M. Hammon, M.D., Professor of Epidemiology, University of California
J. P. Leake, M.D.
Kenneth F. Maxcy, M.D., Professor of Epidemiology, Johns Hopkins University
Ralph S. Muckenfuss, M.D., Assistant Commissioner, New York City Department of Health
Alton S. Pope, M.D., Deputy Commissioner, Massachusetts Department of Public Health
Ernest L. Stebbins, M.D., Director, Johns Hopkins University School of Hygiene and Public Health
Franklin H. Top, M.D., Director, Herman Kiefer Hospital, Detroit
Norman H. Topping, M.D., Associate Director, National Institutes of Health

Meeting at the same time was the study group on Hemolytic Streptococcal Infections of the Committee on Evaluation of Administrative Practices, whose secretary is Dr. Top. Other members are Drs. Anderson, Fraser, John R. Paul, Professor of Preventive Medicine, Yale University; and Milton V. Veldee, Chief, Biologics Control Laboratory, National Institutes of Health.

In addition, the following consultants attended the group meeting:

Morton Hamburger, M.D., University of Cincinnati Medical School
T. Duckett Jones, M.D., Director of the Helen Hay Whitney Foundation, New York
David D. Rutstein, M.D., Professor of Preventive Medicine, Harvard University
Francis F. Schwentker, M.D., Pediatrician in Chief, Johns Hopkins Hospital
Homer F. Swift, M.D., Hospital of the Rockefeller Institute for Medical Research

This group made recommendations for revision of the chapters of the communicable disease control report on Hemolytic Streptococcal Infections, Respiratory and Non-Respiratory, and Rheumatic Fever. The revised chapters

were accepted by the Subcommittee on Control of Communicable Diseases for inclusion in the 7th edition.

In the new edition, control measures will be presented under four main classifications: preventive measures, those applicable to the individual case and contacts, epidemic measures, and international measures.

Treatment will not be dealt with except as it affects the period of communicability of a particular disease. A number of definitions will be added. The sections on the rickettsias and the jaundices have been materially changed due to recent new knowledge. Enterobiasis, histoplasmosis, and toxoplasmosis are among the diseases that have not been included in previous editions of this report.

The manual *Control of Communicable Diseases* was first published in 1917. The 6th edition, printed in 1945, was prepared with the agreement of the British Ministry of Health as to certain diseases, was adopted as official by the U. S. Public Health Service, the U. S. Navy, and the Territory of Hawaii, was recommended for adoption as an official statement by the National Health Administration of China, was approved for distribution to the staff of UNRRA, and was published under the imprint of 10 state health departments, and Washington, D. C., the Quebec Ministry of Health, U. S. Indian Service and the Office of War Information, the departments of public health of the Louisiana State and Yale Universities Schools of Medicine, and the Atlantic Seaboard and Northwest Divisions of the Agricultural Worker's Association. It was translated into at least 6 languages. The Pan American Sanitary Bureau was responsible for the translation and distribution of the Spanish text.

SPECIAL NOTICE TO MILK CONTROL LABORATORIES

The Sanders-Sager Phosphatase Test for Pasteurization

The Sanders-Sager Method for the determination of residual phosphatase in a wide variety of heat-treated dairy products, including milk and cream, has been adopted by the Association of Official Agricultural Chemists, *Journal A.O.A.C.*, 31:82–91, 1948. This action has created an inconsistency with respect to phosphatase methods recognized by the American Public Health Association.

The New York State Department of Health Method and the New York City Department of Health Laboratory Method I have been recognized in *Standard Methods for the Examination of Dairy Products, Ninth Edition,* for use on milk, cream, frozen desserts, chocolate milk, and butter. In the same publication the Sanders-Sager Method was adopted for use on hard type (cheddar) cheese only.

Plans are now being made for public health laboratories to join in collaborative work under the direction of the Associate Referee on Phosphatase Methods in the Association of Official Agricultural Chemists. The intent is to compare the methods as customarily used in the collaborator's laboratory on fluid milk and cream with the Sanders-Sager procedure, hoping thereby to be able to reconcile the present inconsistent status of recognition.

Copies of the Sanders-Sager Method, including the formal action taken thereon, can be obtained from the office of the American Public Health Association. These are distributed with the approval of the Joint Editorial Board, Ninth Edition, Standard Methods for the Examination of Dairy Products.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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Order blank for Report of the Sanitary Commission of Massachusetts 1850 by Lemuel Shattuck appears on page XXXVI.

A.P.H.A. membership application blank on page XXXIII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

Positions Available

TB Control Physician for Pacific Coast State Health Department. Minimum 3 years' experience in TB control work. Graduate of Class A medical school, 1 year internship, preferably supplemented by 1 year graduate study in school of public health leading to M.P.H. degree. $7,200 to start, advancing to $8,400. Considerable state-wide travel with maximum per diem of $7.50, plus 6¢ per mile for use of car. Civil Service status but no written exam required. Write **Box A-45**, Employment Service, A.P.H.A.

Assistant Medical Superintendent, TB Sanatorium. To assist in administration of 100 bed TB Sanatorium and outpatient chest clinic. Some previous experience in a TB institution required. Candidates must have license or procure license to practise in California before appointment. Salary range $549–686 monthly. Write: Civil Service Commission Court House, Redwood City, Calif.

Clinical Laboratory Technician to perform general bacteriological and serological examinations and various diagnostic tests under direction of Senior Technician. Current Clinical Laboratory Certificate issued by State of California must be obtained prior to appointment. Salary range $225–281 monthly. Write: Civil Service Commission, Court House, Redwood City, Calif.

Bacteriologist to perform water and milk laboratory examinations and general current bacteriological and serological laboratory work. Public Health Laboratory Technicians certificate issued by California must be obtained prior to appointment. Salary range, $252–314. Write: Civil Service Commission, Court House, Redwood City, Calif.

Health Educator for State TB Association in New England. Duties include consultant work with affiliated associations throughout state to promote community organization for health education and public health action. Master's degree in public health and/or health education is required. Please state salary expected. Write: (Mrs.) Sarah J. Schmidt, Director of Health Education, Massachusetts Tuberculosis and Health League, 1148 Little Bldg., Boston 16, Mass.

Local Health Consultant, 5 years employment in public health work including experience as health officer. Equivalent combinations will be considered. Salary $6,600–9,120. Appointment may be made at the minimum rate. Write: State Personnel Department, State Capitol, Hartford, Conn.

Laboratory Technician, male or female, for City Health Department Laboratory. Graduate of recognized training school, salary begins at $2,700 and increases to $3,110 after probationary period of 90 days. Retirement plan, vacation, and sick leave. State training and experience in bacteriology, serology, parasitology, and other related subjects. Write: R. L. Loftin, M.D., Director, Bay City Dept. of Health, City Hall, Bay City, Mich.

Public Health Officer, Grays Harbor County, Washington; entrance salary of $7,440 per annum with the range reaching $9,120. Hoquiam and Aberdeen are the principal cities of this county which has a population of about 55,000 and is located on the westernmost portion of the state bordering the Pacific Ocean. Write: Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Public Health Officer for County Health Department. Beginning salary $12,000; salary range $12,000–15,000. Car provided. References, qualifications, experience, recent photograph required. Write: Box 1191, Joliet, Ill.

Bacteriological Technician to assist in the Bacteriology Department of the Research Division of a large pharmaceutical and biological firm. B.S. degree in Bacteriology and at least 1 year of experience. Experience in immunology or chemotherapy desirable. Salary starts at $58.40 per week. Write **Box A-44**, Employment Service, A.P.H.A.

Supervisors and Public Health Nurses, Baltimore County Health Department. Population 248,000; suburban, industrialized, and rural areas; county seat 8 miles from Baltimore. Generalized service including modern school health program, rapidly expanding up to 50 field nurses. One month's vacation; 5 day, 35½ hour week; sick leave; retirement plan. For

use of personal car, 7¢ per mile. Supervisors: degree and experience required; salary $3,200–$3,700; with additional preparation in child hygiene, venereal disease, mental hygiene, or orthopedics, $3,500–$4,000. Public Health Nurses: beginning salary $2,300 (for trainee) to $2,700, depending on experience and education; increases to $3,300. Write: Dr. William H. F. Warthen, Health Officer, Baltimore County Health Dept. Towson 4, Md.

Physician as Director City-County Health Department, population 56,000; staff of 14; well equipped offices and laboratory. Salary for man with degree in public health $7,500 plus 8¢ per mile travel. Write: City-County Health Dept., Safety Building, Eau Claire, Wis.

Sanitation and Public Health Engineer—experienced man for tropical assignment. Will work in connection with well established medical hospital. Should have background in malaria and nuisance control, laboratory testing, worm and infectious diseases. Attractive two year contract. Write for details to **Box A-43**, Employment Service, A.P.H.A.

Public Health Nurses needed by San Bernardino County; public health nurse's certificate required; car necessary, mileage allowed; salary $232–282 per month. Write: County Personnel Office, 242 Third Street, San Bernardino, Calif.

1. **Field Workers** for state office of voluntary health agency, Northeast. Salary range $3,000–3,800 or $3,800–4,800 depending on background.
2. **Executive Secretary** for local voluntary agency, Northeast; salary $4,000–$5,000. Health Education and community organization background required for both types of positions. Write **Box A-42**, Employment Service, A.P.H.A.

Health Director for Shiawassee County, Michigan. Population about 42,500. Write to J. R. Middaugh, Chairman Health Committee, Laingsburg, Mich.

Health Officer for agricultural county in eastern North Carolina; population 68,000; county seat has 4 year college, accredited high schools, staff of 10, salary open. Must meet North Carolina Merit System requirements. Prefer M.P.H. Write: J. H. Boyd, Jr., Mayor, Greenville, N. C.

Sanitary Engineer or experienced **Sanitarian** for rural district in Michigan. Starting salary $3,400 and mileage $600. Write: Saginaw County Health Dept. 1501 North Michigan, Saginaw, Mich.

Announcement

District Health Officers Wanted in New York City Health Department

The New York City Department of Health has 6 vacancies in the title of District Health Officer at the salary of $7,150 per annum. This position involves administrative responsibility for all activities of the Department of Health in a district with a population of approximately 250,000. Candidates must have an M.D. degree and 1 year of approved internship. In addition, they must have an M.P.H. degree and 3 years of experience as a health officer or assistant health officer, or in another administrative public health position; or a satisfactory equivalent of this education and experience. Local legislation requires 3 years of residence in New York City immediately prior to appointment. This requirement will probably be waived in the case of outstanding applicants. Interested applicants are to write to: Bureau of Personnel, New York City Department of Health, 125 Worth Street, New York 13, N. Y.

POSITIONS WANTED

Bacteriologist, M.S., minor chemistry, 9 years of extensive experience in research, clinical bacteriology, and industrial development. Interested in responsible position in public health, industrial laboratory or teaching institution. Write **Box L-D1**, Employment Service, A.P.H.A.

Sanitarian, B.S., M.P.H., male, 39, 8 years field and administrative experience in control of food, drugs, milk, and water in official health department. Interested in supervisory or administrative position in environmental sanitation program of official agency or industry. Minimum required salary $5,000 per annum. Write **Box E-7**, Employment Service, A.P.H.A.

Director of one of larger northern industrial city departments, with broad federal, state, and local experience; initiator of several unique and successful programs, desires change to south or southwest for climatic reasons. Will exchange and respect confidential correspondence preliminary to interview. Write **Box C-9**, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Professor of public health, foreign university; American citizen, qualified to speak Spanish fluently, required. (b) Public health director, health unit comprising two county areas; town of 8,000, short distances from university center, several large cities; Middle West. (c) Student health director; state university; 9,000 students. (d) Public health or tuberculosis specialist to serve as tuberculosis consultant in United States dependency. (e) Tuberculosis specialist to direct newly inaugurated program in large metropolitan area; $15,000. (f) Public health physician to direct new program; large organization; California. (g) Public health supervisors and staff nurses; newly established city and county health departments; salaries for former, $3,300–$4,800; for latter, $2,700–$3,900. **PH2-1** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Dentist to direct health program of education, preventive and remedial; suburb, Middle West metropolis, university medical center. (b) Dental consultant; state department of health; should be qualified to develop program for children; Southwest. (c) Dentist to conduct rural health dental program; Southeast. **PH2-2** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Health Educator; Chicago area. (b) Sanitary engineers, public health engineers and specialists in fields of malaria and insect control; positions of considerable responsibility; South America. (c) Sanitarian; county health department; California. (d) Health educator; university medical center; New England. (e) Sanitary engineer; state department of health; West. **PH2-3** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Public health nurse supervisor; generalized program, including tuberculosis division, school program; university town, California. (b) Educational supervisor; city health department; vicinity New York City. (c) Public health nurse consultant; state service for crippled children under direction of university medical school. (d) School nurse to direct health program; county schools; headquarters in university town; Pacific Northwest. (e) Public health supervisors and staff nurses; modern health centers; South America; knowledge of Spanish, Portuguese or French desirable. **PH2-4** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health physician seeks directorship; M.P.H., Johns Hopkins; seventeen years' public health experience, including important assignment abroad; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Dentist experienced in public health work; eight years in charge of dental division, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator or coördinator; Master's in Public Health; two years, health educator, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; B.S. in Bacteriology; twelve years, sanitary engineer, large industrial company; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health specialist; M.S.P.H. (Major: health education), Yale; eight years, Professor of Health Education and Health Educator, small college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse seeks administrative position; M.A., Public Health Nursing; six years, educational supervisor, city health department; eight years, nurse consultant, state board of health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

SUMMARY OF REPORT OF THE TASK FORCE COMMITTEE ON FEDERAL MEDICAL SERVICES TO THE COMMISSION ON ORGANIZATION OF THE EXECUTIVE BRANCH OF THE GOVERNMENT

One section of the work of the United States Commission on Organization of the Executive Branch of the Government, commonly known as the Hoover Commission, was charged with a study of federal medical services. Former President Herbert Hoover released, on December 26, a summary of the report of the Task Force on Federal Medical Services. Its purpose, he said, was to indicate the organizational problems with which the government is confronted. The report represented almost a year's work.

Mr. Hoover said that we all want veterans and members of the armed services to have first rate medical care and that the problem is to provide such care without overtaxing our limited number of trained physicians and other medical resources. This means that we must eliminate waste in the use of these physicians and in the use of these resources. Unless we do this, veterans, civilians, and servicemen alike will suffer.

Mr. Hoover made it clear that Task Force findings do not necessarily represent the final conclusions of the Commission, which is obligated to make a pattern of the Government as a whole, and it is not always possible, he said, to fit special points of view into the general pattern.

The personnel of the Task Force on Federal Medical Services included, under the Chairmanship of Hon. Tracy S. Voorhees, Assistant Secretary of the Army, 16 members of the committee, plus a professional staff. Among those best known in public health were Edward D. Churchill, M.D. of Boston; Robin C. Buerki, M.D., of Philadelphia; Paul R. Hawley, M.D., of Chicago; Hugh R. Leavell, M.D., of Boston; William C. Menninger, M.D., of Topeka; Hugh J. Morgan, M.D., of Nashville; Alfred N. Richards, Ph.D., of Philadelphia; Allen O. Whipple, M.D., of New York and Ray Lyman Wilbur, M.D., of Palo Alto. The staff consisted of Howard M. Kline, Ph.D., as Executive Director, recently a member of the staff of the A.P.H.A. Subcommittee on Medical Care, with Jack R. Ewalt, M.D., in neuropsychiatry; Richard Nauen, M.D., and Edward X. Mikol, M.D., for tuberculosis; Julius Comroe, Jr., M.D., for research; James Troupin, M.D., for preventive medicine; E. Richard Weinerman, M.D., for hospitalization; plus specialists in medical supply.

I. MAGNITUDE OF THE PROBLEM

In 1948 more than forty-four federal agencies spent about 1¼ billion dollars for health and medical services. The federal government now assumes a varying degree of care for some 24,000,000 persons, about one-sixth of our population.

II. WEAKNESSES OF THE PRESENT SYSTEM OF ORGANIZATION OF FEDERAL MEDICAL SERVICES

The present program is devoid of any central plan. The federal government is assuming uncalculated obligations without any understanding of their ultimate cost, the lack of the necessary professional man power to carry them out or their adverse effect upon the hospital system of the country. There must be overall planning and this in turn requires first, a clear definition of the extent of the responsibilities, and second, an organization appropriate to carry out the commitment.

A. *Defects Revealed by Area Studies*

In the New York City area it was found that four Army and Air Force hospitals could be closed, reducing the requirements for medical officers by 80 per cent, yet at the same time a higher standard of service would be provided. Several federal agencies are planning to build hospitals in this area to cost $100,000,000, meaning a doubling of the permanent plant. There is no evidence that such additional beds are needed.

In the San Francisco area there are 13 federal hospitals with a constructed capacity of 9,900 beds, but they have only 4,200 patients at present. Seven of these 13 hospitals could be closed since only 42 per cent of their constructed capacity is utilized.

In Honolulu the Army has just completed a hospital costing $37,000,000, although the Navy has close by a permanent hospital plant adequate for all military needs in that area. Under proper planning practically all of the expenditures for the Army Hospital since the war could have been avoided.

B. *Defects on the Basis of Diseases*

For tuberculosis and neuropsychiatric cases (which now occupy 60 per cent of the Veterans Administration's beds) the present organization is unsatisfactory. There is an acute shortage of medical personnel aggravated by unsound organization. Duplication results in inefficiency, and there is imperative need for unification.

C. *Shortcomings in Construction Program*

The Veterans Administration has a hospital construction program that will cost $1,100,000,000. These hospitals will cost from $20,000 a bed to as high as $51,000 per bed depending on the size and location. "V.A.'s program conflicts with the government's policy under the Hill-Burton Act of aiding non-federal hospitals for the purpose of establishing a further hospital system for the country as a whole."

D. *Defects Relative to the Length of Stay of Patients*

Compared with representative voluntary hospitals, patients with the same diagnosis stay in government hospitals two or three times as long. Under a unified system with proper planning the period could be greatly shortened.

E. *Shortcomings in the Use of Medical Man Power*

In the Armed Forces a great shortage of medical personnel exists. Within six months it will be accentuated because medical personnel trained at government expense will be completing their required tour of duty. A draft of medical personnel is needed, but it will bring in only young doctors who cannot provide high-grade specialized care. Among the non-military federal agencies, no one has the necessary man power. This condition is neither temporary nor self-correcting. Construction of the Veterans Administration hospitals is far outrunning the available man power. These shortages are intensified by present organization and practices which make for inefficiency in utilizing professional personnel.

F. *The Problem of Federal Beneficiaries*

A large plant is being built to serve groups of beneficiaries to whom the federal obligation is not clearly defined. About 900,000 Army and Air Force dependents receive complete medical care on no basis other than an appropriation act passed more than sixty years ago authorizing medical officers to care for dependents "whenever practicable." Concerning veterans with non-service connected disabilities, there is an authorization to hospitalize them only if beds are "available." Nevertheless, 100,000 Veterans Administration hospital beds have been built or authorized which serve no purpose except deliberately to make beds available for non-service connected cases. Most of this hospitalization could be more efficiently provided in community hospitals on a reimbursable basis.

III. RECOMMENDED ORGANIZATION TO ACHIEVE OBJECTIVES DEFINED BY CONGRESS

For the non-military system it is recommended that a National Bureau of Health should be established within the Cabinet Department embracing health, education and security. This Bureau of Health should be headed by a professional career Director General, who should report directly to the Secretary of the Department. This Bureau should be composed of three main divisions:

1. Medical Care, which would include all functions of hospitalization and other direct medical care of patients
2. Public Health Division
3. Research and Training Division

IV. MEDICAL CARE FUNCTIONS OF THE NATIONAL BUREAU OF HEALTH

To the Medical Care Division of the Bureau there should be transferred the following:

1. All general hospitals of the Armed services and most station hospitals except those at outlying posts
2. The medical functions of the Veterans Ad-

ministration, in toto, including the outpatient service in the Regional Offices
3. The hospitals of the Public Health Service
4. St. Elizabeths Hospital

Each of the armed services should maintain one medical and teaching hospital, overseas hospitals, and some station hospitals. The hospitals of the Bureau of Indian Affairs and the Bureau of Prisons should not be transferred, but they should be manned by personnel from the National Bureau of Health. The transfer of the general hospitals of the armed services is justified partly because a large number of the patients in them are of little further military value. The transfer of the Veterans Administration hospitals is justified under the Commission's instructions to place like functions, where possible, together. If they are to remain separate, the Bureau of Health would be a central health agency in name only.

V. INTEGRATION OF FEDERAL HOSPITALIZATION SYSTEM WITH NON-FEDERAL HOSPITALS

The present inconsistencies in policy between the Veterans Administration and other federal construction programs and the non-federal hospitals under the Hill-Burton Act should be ended. Inadequacies exist in the nation's hospital plant. The federal government believes that there is need for doing something about them. This policy could be furthered by placing federal cases in non-federal hospitals on a reimbursable basis wherever it is efficient to do so instead of further enlarging the federal hospital plant. Where facilities do not exist they can be constructed on a grant-in-aid basis with much less cost to the federal government than by direct construction and operation. The average total cost of construction per hospital bed for private hospitals is about $16,000, whereas in federal hospitals it is between $20,000 and $30,000. Also this would tend to relieve the financial difficulties of private hospitals.

VI. NEED FOR RECONSIDERATION OF THE DEFINITION OF BENEFICIARIES

In planning future medical services Congress should clearly define the beneficiaries. As to dependents of persons in the armed service the same policy must apply to all three services. Such care is really a part of the compensation of persons in the armed service.

As to veterans with non-service connected disabilities, the present situation is inequitable to veterans and unsound and expensive for the government. Such care should be furnished in those facilities, whether federal or local, in which it can be given most efficiently. Congress should make a decision on whether medical service should be extended to all veterans irrespective of financial need or to those with non-service connected disabilities only if they are in financial need. "In any case, there is no need for financial screening of chronic cases, as substantially all of these are soon made medical indigents by their disease. They would be a charge on the public in any event."

VII. ORGANIZATION OF MEDICAL SERVICES IN THE ARMED FORCES

Unification of medical services in the various armed forces would be most efficient, but medicine alone cannot be merged. Consequently such consolidation must be geared to the extent of unification of the services themselves. Much duplication can be avoided by assigning responsibility in each overseas area to one service to give hospital care for all. Supervision of armed forces medical services should be in the hands of a Deputy of the Secretary of Defense. These suggestions would greatly relieve the demand for personnel for armed service medical service. Nevertheless, this reduction in requirements would not be sufficient to avert a draft of medical personnel.

VIII. HEALTH RESOURCES AND MAN POWER ALLOCATION IN TIME OF EMERGENCY

The plan that has been outlined above would be a significant measure to promote national defense. It would make possible the optimum utilization of medical man power by a full integration of the federal hospital system with non-federal hospitals. It would make possible a further saving of medical man power. Where atomic warfare is a potential threat it is not feasible to take medical practitioners from their home communities. To do so would imperil civilian defense.

IX. PUBLIC HEALTH FUNCTIONS OF THE NATIONAL BUREAU OF HEALTH

In the Public Health Division of the proposed National Bureau of Health the following activities would be consolidated. From the Public Health Service the following would be transferred: the Bureau of State Services and quarantine activities of the Bureau of Medical Services, the Biologics Control Laboratory and the Offices of Sanitary Engineering and of Dentistry from the Office of the Surgeon General. The Food and Drug Administration would also be a part of the Public Health Division.

The main functions of the Public Health Division would be

a. To administer grants-in-aid.
b. To conduct a clearing house of information on public health activities.
c. To regulate Interstate Commerce in foods, drugs, and medicines.

The federal grants-in-aid for public health have proved extremely useful. They have stimulated state and local expenditures for public health. The federal share of such expenditures has fallen from 46 per cent in 1937 to 29 per cent in 1946. It is recommended that in the future these grants should be made on a more general basis. The federal structure for administering grants should be simplified and decentralized, with minimum supervision of the states consistent with sound planning and administration. The grants-in-aid administered by the Children's Bureau should not be transferred immediately. "It is the view of your committee that it [the Children's Bureau] should function as a staff unit directly responsible ,to the secretary of the proposed department, rather than having its health and other functions split and united with the major component units of the Deparement." In not more than three years the administration of grants for maternal and child health and crippled children should be consoldiated with the other health grants-in-aid administered by the Public Health Division.

The Meat Inspection Service now in the Bureau of Animal Industry should remain there.

X. RESEARCH AND TRAINING IN THE NATIONAL BUREAU OF HEALTH

Because research and medical education are a necessary part of any broad medical program, a Division of Research and Training should be created in the Bureau. In the administrative control of research there is need for a certain looseness and flexibility. Nevertheless, some coördinating mechanism is needed under which research activities that are truly vital to the national welfare may be considered. In the armed services a committee on medical sciences has been created by the Research and Development Board.

In the non-military field a comparable committee should be created consisting of representatives of the Divsiion of Research and Training of the new Bureau, along with representatives of the Atomic Energy Commission and of the Department of Agriculture.

There should also be created a new Interagency Committee on Medical Sciences composed of representatives of the above mentioned group and the group from the military services. This committee should be concerned primarily with grants-in-aid and institutional grants to non-federal institutions. It is also recommended that a National Science Foundation should be established primarily as a means of insuring strength in the basic sciences.

The proposed Division of Research and Training should conduct directly laboratory and basic research, administer grants-in-aid in this field and act as a clearing house of information. The work of the National Institutes of Health should be transferred to it, and it should operate the proposed Clinical Research Center of the Public Health Service.

XI. PERSONNEL POLICIES IN FEDERAL MEDICAL SERVICES

A new overall medical service should be organized for the federal government. The nucleus for this would consist of the medical personnel of the VA hospitals, the commissioned personnel of the Public Health Service and all medical professional personnel employed under Civil Service. "It would be impracticable to make this a commissioned corps." Members of the commissioned service of the Public Health Service should be given the option of positions in the new service or of continuing in their present status "but no new commissions should be issued."

"The new system should put into the hands of the National Bureau of Health the full responsibility for recruiting, selecting, assigning and otherwise handling its own professional personnel." The Civil Service has never functioned effectively in providing an adequate professional career service for medical and ancillary personnel partially because of its rigidity, slowness and lack of opportunity for promotion.

XII. AID TO MEDICAL EDUCATION

Many medical schools are now in serious financial condition. Government financial aid is now an urgent necessity. Adequate facts on which to distribute such aid are not available. The Public Health Service should make a short-range survey to determine the exact needs and how they should be met. Care must be taken in granting aid to maintain the professional independence and the initiative of the schools. Also the aid should be given in such a way as to increase the output of trained personnel especially in the areas where there are acute deficiencies.

XIII. MEDICAL SUPPLY

A unified supply system for medical items would effect great savings.

XIV. PROVISION FOR CONTINUING STUDY AND TOP LEVEL SUPERVISION OF FEDERAL MEDICAL SERVICES

It is necessary to establish some means of coördinating military and non-military federal organizations in the medical field.

XV. THE NEED FOR INCREASED EMPHASIS ON THE CONTROL OF DISEASE

The outlook is most alarming concerning the costs of medical care and the needs for hospitalization if we consider medical care in terms of its organization as it exists today. One important factor that would directly reduce costs for hospitalization is the relative increase in the provision of ambulatory care. At present the government apparently is committed to a reverse policy. The second course open is through research and development in public health and preventive medicine. Here the federal government can lend assistance. Preventive medicine must be widely defined as including both special measures that protect the individual from contracting a disease as well as measures for the prevention of death and disability, and the early recognition and treatment of disease that is already established.

As an example of the savings that can result from preventive medicine, some 50,000 more persons would have died of diphtheria in 1947 if the 1900 mortality rates had prevailed. The cost to the nation in 1947 would have been $30,000,000 as against an actual expenditure of $600,000. "We stand confident then in the recommendation of a courageous approach to the control of chronic disease, rather than a passive acceptance of the immeasurable cost that lies ahead. Funds invested in research and education at this time will not only return dividends in dollar savings in the future, but a still greater reward in health and productivity in the nation."

XVI. CONCLUSION

"We have attempted to outline a method which we hope will correct the extravagance resulting from the present series of unrelated projects, and weld these together into an integrated, orderly whole. With such an organization, staffed by outstanding personnel, it should be possible to utilize our unequaled medical resources to the maximum, and by intelligent planning take steps which will make us a healthier and stronger nation."

PAN AMERICAN SANITARY ORGANIZATION MEETS

The Directing Council of the Pan American Sanitary Organization met in Mexico City, October 8–12. It adopted a budget of $1,700,000 for the year 1949 for its operating unit, the Pan American Sanitary Bureau. Approximately 30 per cent each, of this budget, is designed for field programs for the control of communicable diseases, and for central service and field activities, and approximately 20 per cent each for headquarters administration, and for zone offices.

At this meeting also a report was made on relations with the World Health Organization which will be the basis for the agreement between WHO and the Pan American Sanitary Organization. The director of the Pan American Sanitary Bureau is authorized to sign this agreement as soon as 14 of the 21 American nations have ratified the Constitution of the World Health Organization. Nine nations have ratified, the most recent one being Argentina on October 22. The Directing Council of the Pan American Organization recommended to its remaining members the desirability of ratification so that the viewpoint of the American continent might be duly represented in WHO deliberations.

This meeting also took action on non-self-governing territories, which by resolution, were granted the right to participate without vote in the deliberations of the plenary sessions of the Directing Council; to participate with voting rights in committees of the Directing Council except in matters of administration, finances, and the constitution; to participate on the same basis as members in matters relating to procedure in the sessions of the Directing Council and its committees; and to propose subjects for the agenda of meetings of the Directing Council.

Lima, Peru, was designated as the seat of the 1949 meeting of the Directing Council.

The following officers were elected at a preliminary session of the Executive Committee:

Chairman: Mexico, Dr. Ignacio Morones Prieto
Vice-Chairman: Peru, Dr. Jorge Estrella Ruiz
Secretaries: Pan American Sanitary Bureau, Dr. Miguel E. Bustamante; Mexican Delegation, Dr. Jose Zozaya

Representatives of the 19 countries present at the meeting were:

Argentina, Dr. Alberto Zwanck
Bolivia, Dr. Nestor Salinas Aramayo
Brazil, Dr. Heitor Praguer Froen
Colombia, Dr. Jorge Boshell Manrique
Costa Rica, Dr. Gonzalo Gonzalez Murillo
Cuba, Dr. Luis Espinosay G. Caceres
Dominican Republic, Dr. Luis F. Thomen
Ecuador, Dr. Roberto Nevarez Vasquez
El Salvador, Dr. Rafael Vega Gomez
Guatemala, Dr. Luis F. Galich
Honduras, Dr. Daniel Meza Zelaya
Mexico, Dr. Ignacio Morones Prieto
Nicaragua, Dr. Jacinto Jimenez
Panama, Dr. Guillermo Garcia de Paredes
Paraguay, Dr. Raul Pena
Peru, Dr. Jorge A. Estrella Ruiz
United States, Dr. Thomas Parran
Uruguay, Dr. Ricardo Cappeletti
Venezuela, Dr. Alfredo Arreaza Guzman

The Pan American Sanitary Bureau's Director, Dr. Fred L. Soper; the Assistant Director, Dr. John R. Murdock, the Secretary General, Dr. Miguel E. Bustamante; the Chief of the Lima Regional Offices, Dr. Anthony Donovan; and its nursing consultant, Mrs. Agnes M. Chagas, among others, were present. The final report was signed for the United States by Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, serving as an alternative representative for his country.

Observers were present as follows:

World Health Organization: Dr. Frank A. Calderone, Director, New York Office
Holland: Dr. C. Van Den Berg, Director General of Public Health
French Antilles: Dr. Rene Goulley, Ministry of Health
British Caribbean Territories: Dr. Joseph W. P. Harkness, Medical Adviser
Netherlands West Indies: Dr. Jacob Rudolph Arends, Chief, Health Services
Surinam: Dr. Anton Eduard Wolff, Chief, Bureau of Communicable and Endemic Disease Control

DR. ARMSTRONG RECEIVES PRENTISS AWARD

At a luncheon meeting of the Health Education Section, American Public Health Association, in Boston on November 9, Donald B. Armstrong, M.D., 2nd Vice President of the Metropolitan Life Insurance Company in charge of health and welfare services, received the fifth annual Elisabeth S. Prentiss National Award in Health Education, for outstanding achievement in the health education field. The presentation was made by Lester Taylor, M.D., president of the Cleveland Health Museum.

The Museum's Award Committee based its selection of Dr. Armstrong upon a wide range of accomplishments. His 1916 survey and study led to the establishment of the world's first health demonstration, the Framingham, (Mass.) Community Health and Tuberculosis Experiment. This proved that a community can stamp out tuberculosis, and paved the way for control in this and other countries. His survey in 1920 resulted in the first National Health Council which he headed for several years. As Secretary of the Milbank Memorial Fund Technical Board he conducted health demonstrations in several New York State cities.

In receiving the Award, Dr. Armstrong paid a tribute to his staff. "It is the members of this staff," he said, "rather than one involved in administrative policies, who really contribute and execute ideas and effective action in health education. These associates of mine are the real winner of this award."

SURVEY OF MEDICAL EDUCATION

A three year survey of medical education was begun on January 1 jointly by the Association of American Medical Colleges and the Council on Medical

Education and Hospitals of the American Medical Association. The full-time director of the survey is John E. Deitrick, M.D., also professor of medicine at Cornell University Medical College and active for many years in cardiovascular research.

The objectives of the study are stated to be "to evaluate the present programs and determine the future responsibilities of medical education" in order to:

1. Maintain the best physical and mental health standards of all the people.
2. Assess the degree to which medical schools are meeting the needs of the country for physicians.
3. Promote the advancement of knowledge in the field of medical science.
4. Inform the public fully about the nature, content, and purposes of medical education.

The members of the joint committee of seven who will supervise the study are:

Dr. Alan Valentine, Chairman, President, University of Rochester
Dr. Donald G. Anderson, Secretary, Council on Medical Education and Hospitals, American Medical Association
Dr. Arthur C. Bachmeyer, Associate Dean, University of Chicago School of Medicine
Dr. Joseph C. Hinsey, Dean, Cornell University Medical College
Dr. Victor Johnson, Director, Mayo Foundation for Medical Education and Research, Rochester, Minn.
Dr. Dean F. Smiley, Secretary, Association of American Medical Colleges
Dr. Herman G. Weiskotten, Dean, Syracuse University College of Medicine

WHO NOW INCLUDES 57 NATIONS

It was announced at headquarters of the United Nations at Lake Success, N. Y., on January 6, that Paraguay had joined the World Health Organization to become the 57th member of the group.

It was pointed out that Paraguay is the tenth member of the Organization of American States to join WHO. When fourteen American republics have joined, a formal integration is to be effected between the WHO of the United Nations and the Pan American Sanitary Bureau, which will serve as a regional agency of WHO.

NEW YORK STATE HEALTH CONFERENCE MOVES TO LAKE PLACID

Herman E. Hilleboe, M.D., New York State Commissioner of Health, has announced that Lake Placid, N. Y., has been chosen by the State Department of Health as the location for the 45th Annual Conference of Health Officers and Public Health Nurses. The 1949 conference dates will be June 20–23 and will include meetings of the State Health Officers Association and the Association of School Physicians.

The conference has for many years been held in Saratoga Springs, where registration in recent years has exceeded 1,500.

INTER-AMERICAN CONGRESS ON BRUCELLOSIS

The Second Inter-American Congress on Brucellosis, under the auspices of the Pan American Sanitary Bureau, was held at Mendoza and Buenos Aires, Argentina, November 17–26, 1948. The United States was represented officially by Dr. James H. Steele, Chief, Veterinary Public Health Division, Communicable Disease Center, U. S. Public Health Service, who was named Chairman of the Delegation, and Dr. C. K. Mingle, Assistant Chief, Tuberculosis and Brucellosis Eradication Division, Bureau of Animal Industry. Other American participants who were invited by the Congress were Dr. Harold Harris, New York City. Dr. Horace Powell, Indianapolis, Ind., Dr. Leo Lowbeer, Tulsa, Okla., and Dr. Joseph Griggs, Claremont, Calif.

The meeting at Mendoza was devoted to research and epidemiology papers by representatives of Argentina, Chile, Colombia, Peru, Venezuela, Mexico, and the United States. Dr. Steele presented

a paper on The Epidemiology of Brucellosis in the United States at this meeting. Dr. Mingle responded at the opening session for the visiting delegates to the speech of welcome by the Minister of Health, Dr. Luis Carrillo. Dr. Carlos Grivellari, Director of Public Health, Argentine Republic, was chosen President of the Congress. Dr. Miguel Bustamente, Secretary, Pan American Sanitary Bureau, was assisted by Dr. M. Ruiz Castaneda, Secretary.

In the Mendoza area, which is in the foothills of the Andes, there is an extensive goat industry and most of the brucellosis reported is of the melitensis type. The delegates had an opportunity to visit the surrounding country to see the goat industry and observe the conditions under which the shepherds became infected. The close proximity to human habitation of the corrals and the necessary handling of the animals when they are milked create conditions which allow for human exposure to animal infection. In the urban areas many human cases are traced to unpasteurized cheese of goat origin. There are very few cattle or swine in this region and no human *Brucella abortus* or *Brucella suis* cases are reported.

The meetings were resumed in Buenos Aires on November 22, and closed on November 26. The Buenos Aires session was mainly concerned with the discussion of the diagnosis and therapy of human brucellosis. Dr. Harris spoke on the Diagnosis and Treatment of Brucellosis; Dr. Griggs on Bacterial Allergy; Dr. Powell on Therapy; and Dr. Lowbeer on The Pathology of Swine Brucellosis. Dr. M. Ruiz Castaneda of Mexico, presented an excellent paper on The Treatment of Brucellosis with Aureomycin. The Congress acted to create two permanent committees to study the problems of standardization of human serological diagnostic methods and animal disease eradication. The success of both these study groups will depend upon having a standard antigen with which to compare other antigens. The Congress believed that the antigen of the Bureau of Animal Industry, U. S. Department of Agriculture, would be the best standard to use inasmuch as it is available in very large quantities and could be readily distributed. Similar studies will also be carried on for animal serology. The Congress further agreed that the disease could not be controlled in man until it was controlled in animals.

The Second Inter-American Congress on Brucellosis unanimously voted to accept the invitation of the United States to hold the Third Inter-American Congress on Brucellosis in Washington, D. C., in October, 1950. Dr. William W. Spink, of Minneapolis, Minn., has been named Chairman of the Third Inter-American Congress on Brucellosis, and Dr. M. Ruiz Castaneda will continue as Secretary.

ARKANSAS PUBLIC HEALTH ASSOCIATION

The first Annual Meeting of the Arkansas Public Health Association was held in the Robinson Memorial Auditorium, Little Rock, December 9–11, 1948, under the Presidency of Edgar J. Easley, M.D. Registration exceeded 375 from a total paid individual membership of 700, including at least 25 organizational memberships.

It is understood that the Association is primarily interested at the present time in developing citizen support, performing some of the functions of a state health council. Out of state speakers included Felix J. Underwood, M.D., State Health Officer of Mississippi; C. C. Applewhite, M.D., Medical Director, U. S. Public Health Service, New Orleans; Edythe P. Hershey, M.D., Regional Medical Director, U. S. Children's Bureau, Dallas, Tex.; Wilson G. Smillie, M.D., Cornell Medical College, New York City; and Roscoe P. Kandle, M.D., Field Director, American Public Health Association, New York.

COUNSELLING IN NURSING SCHOOLS

Through a grant from the W. K. Kellogg Foundation, the Western Reserve University School of Nursing is exploring counselling programs. In a series of eight monthly evening lecture-discussions led by counselling experts, about 300 graduate nurses and nursing school faculty members in the Cleveland area are discussing their interest in counselling. Four of the series are still to be held. Further information from Elva H. Evans, Series Secretary, 2063 Adelbert Road, Cleveland 6.

DR. SHEPARD TO UPPSALA UNIVERSITY

In September a new policy was inaugurated by the National Institutes of Health of sending promising young research officers to outstanding laboratories both in the United States and abroad for further study and collaborative research with renowned scientists.

The first of such trainees, Charles C. Shepard, M.D., of the Division of Infectious Diseases, has been accepted by Uppsala University, Sweden, for special training in chemical biophysics under the tutelage of Professor Arne Tiselius, who has a world-wide reputation as teacher and investigator in this field.

FULLER AWARD TO ENGINEER CUNNINGHAM

The Fuller Award of Merit, given annually by the American Water Works Association for distinguished service in the water works field, was recently presented to M. B. Cunningham, Superintendent and Engineer of Oklahoma City. The presentation was made at the annual meeting of the Southwest Section, AWWA, in Galveston in October at which the following officers were elected:

Director: M. B. Cunningham
Chairman: Delbert W. Robinson, Water Works Engineer, Community Public Service Company, Fort Worth, Tex.
Vice Chairman: J. R. Pierce, General Water Works Corporation, Pine Bluff, Ark.

AN INTENSIVE VD CAMPAIGN IN NEW YORK CITY

Early in November, 1948, the New York City Department of Health, in cooperation with the State Health Department, the county medical societies, and the U. S. Public Health Service began an intensive case finding and public information program on venereal diseases.

The 9 point program includes:

1. Organization of community groups, particularly in high VD rate areas, to which literature, display material, lectures, etc., will be supplied.
2. The encouragement of routine blood tests of all new patients by private physicians.
3. Encouragement of routine blood tests industry-wide.
4. Information service to labor unions.
5. Coöperation with colleges and universities in their interest in the scientific, educational and social aspects of VD.
6. Assistance to welfare agencies in their VD programs.
7. Treatment of VD patients by private physicians and in clinics rather than in hospitals to be encouraged.
8. Facilities for free treatment at social hygiene stations wherever necessary.
9. A long range program for the permanent display of posters, especially in places of employment.

By early December, the Commissioner of Health, Harry S. Mustard, M.D., described the program as an "unqualified success." The number of persons coming to social hygiene clinics more than doubled during the first month, and requests for free penicillin rose 400 per cent. In reporting to the Mayor, Dr. Mustard said,

> These results were made possible by the citizens of this city, the business and labor organizations, religious groups, civic bodies, educational institutions, and our colleagues in other city departments. The keen awareness of the difficulties of the problem, and the courageous acceptance of the duties imposed in an educational campaign of this nature, are tributes to the greatness of the people of this city. The medical profession made important contributions, both in terms of treatment and education. . . . Special commendation must be reserved for those great media of communi-

cation—the press, the radio, the motion picture, television, and bill boards—which set aside taboos and attacked the problem forthrightly and intensively. Two other great media, the subway car cards and the giant electric signs—both so peculiarly New York's own—made significant contributions.

FLUORINE TREATMENT IN NEW YORK CITY

A program of reducing tooth decay by fluorine treatment was begun in October by the New York City Health Department. Topical application is being made to the teeth of 50,000 preschool and school children attending health department clinics in 105 schools and 14 district health centers. This treatment is recommended by the American Dental Association and the U. S. Public Health Service. Dentists are being urged by the health department to use topical application of 2 per cent sodium fluoride solution as an aid in caries control.

NURSE RECRUITMENT ACHIEVES SUCCESSFUL RESULT

The National League of Nursing Education, New York, announces that over 700 groups throughout the country have been stimulating the recruitment of student nurses. In 1948, 43,000 new student nurses were enrolled, which is a total of 5,000 more than in 1947.

According to the League, during the past two years the responsibility for promotion was assumed by the American Hospital Association, assisted by the Advertising Council. Beginning in 1949, central planning will be carried on by the nursing organizations, with the League having responsibility for administering the project.

NEW APPOINTMENTS AT THE AMERICAN HEART ASSOCIATION

Two new appointments have been made at the American Heart Association. On January 15, John W. Ferree, M.D. became Director of the Public Health Division of the Association, a new position created to emphasize and promote the public health aspects of the Association's program. A second appointment on January 1 was that of Rome A. Betts as Executive Director. These are the first two appointments since the recent reorganization as a national voluntary health agency with state and local affiliates throughout the United States.

Since early 1947, Dr. Ferree has been Associate Director of the National Health Council, of which the Heart Association is one of the member agencies. As the National Health Council staff representative on the National Advisory Committee on Local Health Units, he was largely responsible for the Indiana and Salt Lake City regional conferences on Local Health Units of the past year, which brought together representatives of diverse lay groups to stimulate action for improving community health services.

Besides his National Health Council background, Dr. Ferree brings to his new job experience as a practising physician, as a state health officer, as a venereal disease control officer of the U. S. Navy during the recent World War, and as Director of Educational Services of the American Social Hygiene Association. He is a Fellow of the American Public Health Association, American Medical Association, and American College of Physicians.

Mr. Betts has been General Secretary of the American Bible Society since 1942, and Associate Secretary for five years previously. He is President of the Protestant Film Commission, and a member of the City Council of Summit, N. J.

Charles A. Connor, M.D. will continue as the Medical Director of the Heart Association with special responsibilities in the field of cardiac research. The Association will conduct a drive from February 7 to 28 for a $5,000,000 fund to study and combat diseases of

the heart and circulation, which have now moved to first place as a cause of death.

MICHIGAN PUBLIC HEALTH ASSOCIATION

The 28th Annual Michigan Public Health Conference was held in Grand Rapids, December 1–3, with a registration of 600 and an attendance averaging about 1,100. The theme of the meeting was community participation in health activities and the program was built around Michigan's favorable experience in this direction.

Among those on the program were Edwin G. Williams, M.D., Chief, Radiological Health Branch, Office of Engineering Activities, U. S. Public Health Service, who discussed Public Health Aspects of Atomic Energy; Richard F. Boyd, M.D., Medical Officer, Welfare and Retirement Fund, United Mine Workers of America, formerly Illinois Director of Local Health Services, who discussed The Health Department of Today and Tomorrow; Herbert J. Dunsmore, newly appointed Public Health Engineer of Pittsburgh Department of Public Health, who discussed The Community Working Together: In Housing; and the newly appointed Michigan Commissioner of Health, Albert E. Heustis, M.D., who opened the Conference. Roscoe P. Kandle, M.D., Field Director of the American Public Health Association, brought the greetings of the Association and served as summarizer of the Conference.

The Conference voted a fund of $500 for educational purposes regarding health units, particularly to work for additional state subsidies to local health districts.

The newly elected officers are:

President: Lyman Chamberlain, Sanitarian, Eaton County Health Department
President-Elect: C. C. Slemons, M.D., Director, Grand Rapids Health Department
Vice-President: James M. Gasoway, D.D.S., Dentist, Children's Fund of Michigan
Secretary-Treasurer: Marjorie Delavan, Director, Bureau of Education, Michigan Department of Health
Representative to A.P.H.A. Governing Council: David Littlejohn, M.D., Director, Wayne County Health Department
Directors: J. G. Molner, M.D., Detroit Health Department; Georgina Reid, R.N., Wayne County Health Dept.

AMERICAN COUNCIL ON RHEUMATIC FEVER ELECTS OFFICERS

The American Council on Rheumatic Fever, which was created in 1944 to correlate the interests of various voluntary health organizations concerned with rheumatic fever and rheumatic heart disease, and to coördinate these efforts with similar activities in the field, has recently announced officers for 1949. The Council is organized under the American Heart Association and there is interlocking membership in the governing bodies of the Council and the Association.

Rustin McIntosh, M.D., has been elected Chairman of the American Council on Rheumatic Fever for 1949. Dr. McIntosh is Carpentier Professor of Pediatrics at the College of Physicians and Surgeons, Columbia University, New York City. Lawrence Linck of Chicago was elected Vice-Chairman. Among the newly elected members of the Council's Executive Committee are:

Walter Bauer, M.D., Boston
David D. Rutstein, M.D., Boston
T. Duckett Jones, M.D., New York
Homer F. Swift, M.D., New York
George M. Wheatley, M.D., New York

The organizations belonging to the Council include:

American Academy of Pediatrics
American Association of Medical Social Workers
American College of Physicians
American Heart Association
American Hospital Association
American Medical Association
American Nurses Association
American Public Health Association
American Rheumatism Association
American School Health Association

National Organization for Public Health Nursing
National Society for Crippled Children and Adults.

A.M.A. ADOPTS DEFINITION OF PUBLIC HEALTH

The House of Delegates of the American Medical Association at its meeting in St. Louis on December 1, upon recommendation of its Reference Committee on Hygiene and Public Health—Stanley H. Osborn, M.D., Chairman, adopted the following definition of public health:

"'Public Health' is the art and science of maintaining, protecting and improving the health of the people through organized community efforts. It includes those arrangements whereby the community provides medical services for special groups of persons and is concerned with prevention or control of disease, with persons requiring hospitalization to protect the community and with the medically indigent."

NUTRITION FOUNDATION MAKES ADDITIONAL GRANTS

At a recent meeting, the Board of Trustees of the Nutrition Foundation, Inc., New York City, appropriated $185,600 for research in nutrition problems, bringing to a total of $1,810,000 the awards by the Foundation to 62 universities and medical centers in North America.

Charles Glen King, Ph.D., who is the Scientific Director of the Foundation, summarized the advances through basic research made possible by the Foundation in relationship to public health, especially with reference to hypertension, the anemias, dental caries, and protein deficiencies.

FRANCIS AMORY PRIZE IS AWARDED

The American Academy of Arts and Sciences has announced the award of $21,000 which is given every seven years for outstanding work in the alleviation or cure of urological disorders.

The prize was first awarded in 1940. A 1948 award will be equally divided among the following persons:

Dr. A. B. Gutman
Dr. Charles B. Huggins
Dr. W. J. Koff
Dr. G. F. Marian
Dr. G. A. Papanicolnou
Dr. S. A. Waksman

FORD FOUNDATION TO STUDY AREAS OF USEFULNESS

The Ford Foundation, established by Henry and Edsel Ford in 1936, and with present resources of $205,000,000, now has an advisory committee of six to determine the areas of human welfare in which the Foundation can most effectively expend its funds. This committee is being asked to report by midsummer of 1949 so that the foundation may be ready to undertake an active program by 1950.

Committee members and areas they represent are:

Business: Dr. Thomas Carroll, Syracuse University
Education: Dr. Donald G. Marquis, University of Michigan; Dr. Francis T. Spaulding, N. Y. State Education Commissioner
Health: Dr. T. Ducket Jones, Harvard Medical School, and Whitney Foundation, New York
Natural Sciences: Dr. Charles C. Lauritson, California Institute of Technology
Political Science: Dr. Peter Odegard, University of California

The study to be made under the supervision of this committee will be directed by H. Rowan Gaither, Jr., San Francisco attorney and general counsel of the Rand Corporation. He will be assisted by William W. McPeak, formerly with the Information and Research Branch of the War Department, who will be in charge of the committee's New York headquarters, 75 East 56th Street. A second assistant will be Dyke Brown.

The Ford Foundation, whose President is Henry Ford II, is reported to be the largest public trust in the world. It was created as a nonprofit corpora-

tion under Michigan law "to receive and administer funds for scientific, educational and charitable purposes, all for the public welfare."

ADVISORY COMMITTEE IN HEALTH EDUCATION APPOINTED FOR NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Announcement has recently been made of the appointment by Basil O'Connor, President of the National Foundation for Infantile Paralysis, Inc., New York, of an Advisory Committee to the Health Education Department of the National Foundation. These persons who represent various aspects of education and of health from the administrative, pediatric, and teacher training viewpoints, were called for their first meeting late in 1948.

The group consists of the following persons:

Paul E. Elicker, Sc.D.
Walter Ellsworth Hager, Ph.D.
Alice V. Keliher, Ph.D.
Harry J. Linton, M.A.
Elizabeth A. Lockwood, Dr.P.H.
William Palmer Lucas, M.D.
W. Carson Ryan, D.Ed.
Hugh R. Leavell, M.D.
Lucy S. Morgan, Ph.D.
Arthur S. Steinhaus, Ph.D.

Sally Lucas Jean is consultant in health education for the Foundation. Pauline Brooks Williamson is Chairman of the Foundation's Committee on Proposed Motion Pictures for High School Students.

NATIONAL MALARIA SOCIETY

The National Malaria Society held its 31st annual meeting conjointly with the American Society of Tropical Medicine, the American Academy of Tropical Medicine, and the American Society of Parasitologists in New Orleans, La., December 5–9, 1948. The following officers were elected:

President: Dr. Wendell Gingrich, Galveston, Tex.
President-Elect: Dr. Paul F. Russell, New York, N. Y.
Vice President: Dr. Ernest Carroll Faust, New Orleans, La.
Director: 3 year term, H. W. Van Hovenberg, Mt. Pleasant, Tex.
Editor: Frederick L. Knowles, Memphis, Tenn.

Dr. Martin D. Young, Columbia, S. C., continues as Secretary-Treasurer.

A PREVIEW OF CHILD WELFARE LEGISLATION

Conferences to preview legislation for children in the 81st Congress were held in Washington and New York in November. At all day sessions in each city various interested agencies discussed legislation to be introduced in the 81st Congress as it affects the health and welfare of children. Among the proposed bills discussed were the national school health services bill, national health insurance legislation, school lunch appropriations, the national child research bill, and the Local Public Health Services Bill of 1948. This last, which will be reintroduced in the 81st Congress under the sponsorship of the National Congress of Parents and Teachers, was discussed in behalf of the Association of State and Territorial Health Officers in Washington by John D. Porterfield, M.D., Ohio State Health Officer, and in New York by Haven Emerson, M.D.

These preview conferences were sponsored by the American Parents Committee, 52 Vanderbilt Avenue, New York 17, from which proceedings are available.

ARIZONA STATE HEALTH DEPARTMENT REORGANIZED

The Arizona State Board of Health has reorganized the State Health Department into four major bureaus as follows: Bureau of Administration, Bureau of Preventive Medical Services, Bureau of Local Health Services, and Bureau of Sanitation. Each bureau head will be

responsible directly to the Director of Public Health and will in turn supervise the activities of the various divisions included under each bureau. The Bureau of Local Health Services will include divisions of local health administration and public health nursing, and several consultant services such as nutrition, medical social work, dental health, and mental health. Bureau and division personnel will serve as consultants for the personnel of local health units in the various counties.

RHODE ISLAND PIONEERS IN DENTAL HEALTH

By a coöperative agreement between the State Department of Health and the Rhode Island Hospital, an expanded long-range program of improving the dental health of the state has been undertaken by the hospital's Joseph Samuels Dental Clinic for Children. In this program, all preschool children will be eligible for dental care, priority being on the basis of need for dental care. J. S. Wisan, D.D.S. is in charge of this part of the program.

40TH OKLAHOMA COUNTY WITH LOCAL HEALTH SERVICE

The Garvin (Okla.) Health Department was organized on November 1, thus becoming the 31st full-time local health department in the state and the 40th county to have such service. Presently it is without a medical health officer, but it is currently being served by the Cleveland County Health Officer, O. R. Gregg, M.D., who will then be supervising the health of about 60,000 persons.

STUDY OF VENEREAL DISEASE CONTROL IN MICHIGAN

A study of case finding in venereal disease control is being made under the joint sponsorship of the Michigan Department of Health and the U. S. Public Health Service, with the coöperation of the local health departments of the state. The object is to find out what is wrong with the current methods of case finding. The study is set up so that within 24 hours after a patient with venereal disease has been interviewed at the Michigan Rapid Treatment Center at Ann Arbor or the Social Hygiene Clinic, Detroit, investigation of contacts can begin. Research began November 1 and will continue until June 30, 1949.

FLORIDA ACTS TO PREVENT POLLUTION OF WATER SUPPLIES

The recent Public Health Engineering Conference held in Gainesville, Fla., and sponsored by the Civil Engineering Section of the University of Florida College of Engineering, had as its theme the protection of ground and surface water supplies from pollution by domestic sewage or industrial wastes. More than 180 representatives of official health agencies and other federal, state, and local departments of government, and representatives of industry, consulting engineers, and professional societies attended. One of the specific acts of the Conference was the formation of The State Coordinating Committee on Surface and Underground Water Pollution Prevention and Abatement, with Professor John E. Kiker, Jr., University of Florida, as Chairman.

PHARMACEUTICAL MANUFACTURERS' AWARD

The National Institutes of Health received the American Pharmaceutical Manufacturers' Association 1948 Scientific Award. It was presented by Ernest E. Irons, M.D., President-Elect of the American Medical Association, at a dinner in New York, on December 7. Dr. Rolla E. Dyer, Director of the Institutes, gave the acceptance address. The award was made at an all day and evening session at which new and basic information on major research progress in drug therapy was reported. Previous

awards have been given to the National Research Council, the Rockefeller Institute for Medical Research, and the American Medical Association.

ARMY RESERVE COMMISSIONS FOR INDUSTRIAL HYGIENISTS AND INDUSTRIAL HYGIENE ENGINEERS

The Department of the Army announces the availability of reserve commissions in the Army of the United States to properly trained industrial hygienists and industrial hygiene engineers. The basic commission is First Lieutenant in the Allied Medical Sciences Section, Medical Service Corps, Medical Department Reserve. Higher ranks will depend upon suitable educational and experience qualifications. Further information, from the local Reserve Unit Headquarters in your area, The Adjutant General, Department of the Army, Washington 25, D. C., or from Department of the *Army Circular No. 210*, July 14, 1948.

BORDEN AWARD TO DR. PAPANICOLAOU

George N. Papanicolaou, M.D., Professor of Clinical Anatomy, Cornell University Medical College, has been awarded the 1948 Borden prize for outstanding contribution in the field of medical science by a faculty member of an American medical college. The award, presented at the recent annual meeting of the Association of Medical Colleges was for work in developing tests for early detection of cancer.

FRANCES STERN MEMORIAL SCHOLARSHIPS

On October 17, in Boston, a memorial service was held for Frances Stern whose death occurred in December, 1947. Her chief interest was the Food Clinic at the Boston Dispensary. Because of her efforts, Tufts College has established a new course in nutrition and dietetics which includes the Food Clinic Course at the Boston Dispensary. The course for graduate students leads to a Master's Degree in Education.

Miss Stern's friends as a memorial to her have established a Frances Stern Scholarship Fund, the income from which will be used to help deserving students complete this course of study. Contributions and inquiries should be sent to Frances Stern Scholarship Fund, 25 Bennett St., Boston 11.

HEALTH OFFICER FOR PLACER COUNTY

Placer County, population about 30,000, is the newest California county to have a full-time health officer. He is Saul Ruby, M.D., formerly San Diego County director of communicable diseases.

MEDICAL SCHOOLS TO RECEIVE LARGE FUNDS FOR PSYCHIATRY TRAINING

In accordance with the recommendation of the National Advisory Mental Health Council at a recent meeting in Washington, the Surgeon General of the Public Health Service, Dr. Leonard A. Scheele, has approved the applications of 42 medical schools in the United States to receive federal funds totalling $1,498,333 for developing or expanding training in psychiatry for undergraduate medical students. Funds will be made available for the school year 1949–1950 and will be paid in annual allotments over a three year period.

The program making psychiatric training available to undergraduate medical students was developed as a result of representations by health authorities that all physicians need to be familiar with the effect of the emotions on the general health of the individual, and that all physicians should be trained to recognize the signs of incipient mental disturbances. The importance of early recognition as a part of preventive medicine was stressed by the Surgeon General.

According to Dr. Scheele, the size of each grant was determined by pro-rating

the requirements for the school against the funds appropriated for the purpose under the National Mental Health Act. Funds average about $35,000 as a total grant for three years.

OKLAHOMA PUBLIC HEALTH ASSOCIATION

The Annual Meeting of the Oklahoma Public Health Association was held in the State Capitol Building, Oklahoma City, December 6–8, 1948, under the Presidency of Hardy Watson. The purpose of the Association is "to assist in protecting and promoting public health, to advance the public health program of the State of Oklahoma, and to provide for the enlightenment and scientific advancement of its members through the interchange of ideas and experience."

About 400 persons attended the meetings in which several persons from out of the state participated, including H. F. Kilander, Ph.D., New York; Pearl Shalit, R.N., Washington, D. C.; Roscoe P. Kandle, M.D., Field Director, American Public Health Association, New York; and William T. Ingram, M.P.H., Engineering Field Associate, American Public Health Association, New York.

A constitution and by-laws were adopted looking toward a prospective affiliation of the Oklahoma Public Health Association with the A.P.H.A.

CONNECTICUT PUBLIC HEALTH ASSOCIATION

The fall meeting of the Connecticut Public Health Association was held in Hartford on December 8 with nearly 200 persons in attendance. The program was featured in the morning session with a panel discussion, "What and How To Tell the Public," under the Chairmanship of Nell McKeever, Health Education Consultant, U. S. Public Health Service, and including among the participants a health educator, a health officer, a laboratory technician, a medical social worker, a nutritionist, an office manager, a public health nurse, a sanitarian, and a statistician.

At the luncheon session the speaker was James R. Miller, M.D., Trustee of the American Medical Association, and a delegate to the World Health Organization meeting in Geneva, who spoke on the WHO Assembly.

The afternoon session was notable among other things for a panel discussion on chronic diseases in Connecticut from the public health standpoint. Participants included James C. Hart, M.D., Acting Director of the Bureau of Preventable Diseases, Connecticut State Department of Health; Charles Bingham, M.D., Chief of Medical Service at the Rocky Hill Hospital for Chronic Illness; Alfred L. Burgdorf, M.D., Health Officer of Hartford; Eckka Gordon, Director of Social Service, Grace-New Haven Community Hospital; William Horton, M.D., Medical Director of the State Welfare Department; and Dorothy Peck, R.N., Public Health Nursing Consultant, State Health Department. Other subjects on the program included health aspects of pollution control by Warren Scott of the Department of Sanitary Engineering, and a program proposed for the conservation of hearing in children by Florence A. Browne, M.D., Child Hygiene Physician, State Health Department.

The President of the Connecticut Public Health Association is George B. Davis, M.D., of Norwalk. The Secretary is Muriel Bliss, Ph.D., of Hartford.

U.S.P.H.S. REORGANIZES ENGINEERING ACTIVITIES

As a result of the passage by the 80th Congress of the Water Pollution Control Act, the U. S. Public Health Service has reorganized its engineering activities. The former sanitary engineering division has been replaced by two divisions, on sanitation and on water pollution control, each of which will be under the

supervision of Assistant Surgeon General, Mark D. Hollis, who is the chief sanitary engineering officer of the Service.

The division of sanitation, Sanitary Engineer Director Callis H. Atkins, Chief, now is responsible for all former sanitary engineering division activities except water pollution control and research in environmental sanitation. The division of water pollution control with Sanitary Engineer Director Carl E. Schwob as Chief, will carry out the terms of the Water Pollution Control Act, which provides for financial and technical assistance to the states in the planning and execution of their water pollution control activities. It will also be in general charge of the Environmental Health Center at Cincinnati which is engaged in basic research and investigations in the field of water and sewage treatment, and milk and food sanitation.

WISCONSIN PUBLIC HEALTH CONFERENCE MEETS IN MADISON

The meeting of the Wisconsin Public Health Conference was held December 20–21 in Madison under the sponsorship of the Wisconsin Public Health Council, the Wisconsin Association for Public Health, the University of Wisconsin, and the Wisconsin Board of Health.

Featured at the first session was a symposium on local health units for the state in which outside speakers included Haven Emerson, M.D. of New York, Chairman of the A.P.H.A. Subcommittee on Local Health Units; John W. Ferree, M.D., Associate Director, National Health Council; Roscoe P. Kandle, M.D., Field Director, A.P.H.A.; and Vlado A. Getting, M.D., Massachusetts State Commissioner of Public Health.

At the Conference session on December 21 the Wisconsin Association for Public Health was formally organized. A Constitution and By-Laws were adopted covering the objectives of the Association, "to promote and protect public and personal health."

More than 580 persons were in attendance, including Frank V. Meriwether, M.D., Medical Director, U. S. Public Health Service, Chicago; Charles F. Sutton, M.D., Illinois State Department of Public Health; A. J. Chesley, M.D., State Health Officer of Minnesota; Vernon M. Winkle, M.D., of the State Department of Public Health, Kansas; and C. L. Putnam, M.D. of the Iowa State Department of Health. Other speakers included Basil C. MacLean, M.D., Director of Strong Memorial Hospital, Rochester, N. Y., on "Coordination of Hospitals and Health Departments"; G. D. Cummings, M.D., Director of the Bureau of Laboratories in the Michigan Department of Health on "The Functions of Public Health Laboratories"; Ellis S. Tisdale, Senior Sanitary Engineer, U. S. Public Health Service on "The Functions of a Sanitarian in a Local Health Department"; and Frederick S. McKay, D.D.S. of Colorado Springs on "Fluorine in the Prevention of Dental Decay." Other speakers were Paul H. Stevenson, M.D. of the U. S. Public Health Service, on "Local Public Health Mental Hygiene Activities"; Margaret Taylor, R.N., Director, Public Health Nursing Course, University of Minnesota, on "The Public Health Nurse Rations Her Time," and a panel on "Local Public Health Programs" in which the visitors participated.

A.M.A. AGAIN ENDORSES LOCAL HEALTH UNITS

At the interim session of the House of Delegates of the American Medical Association meeting in St. Louis on December 1, the following resolution was adopted:

WHEREAS, No amount of medical care of persons already sick will substantially reduce the incidence of illness; and

WHEREAS, The traditional position of the

American Medical Association has been one of firm support of public health service, in fact, this constitutes a major element of the ten point national health program of the American Medical Association, and

WHEREAS, Large numbers of local areas and counties in the United States are not now and never have been covered by adequate sanitary and other public health services, and

WHEREAS, The Surgeon General of the U. S. Public Health Service has announced that one of his first major objectives is assistance in development of local health units throughout the nation to meet this fundamental need, and

WHEREAS, The medical profession has now an opportunity to exert constructive leadership in this matter, through the national, constituent state and component county medical societies, Therefore be it

RESOLVED, That the House of Delegates reaffirm its abiding interest in the necessity for the provision of full-time modern public health services at the local and community level, including sanitation and all the services usually considered essential for the preservation of the public health, and be it further

RESOLVED, That the U. S. Public Health Service be commended for, and encouraged in, its efforts for the further development of local health units for these purposes, and be it finally

RESOLVED, That the Board of Trustees be commended for its efforts in furthering full-time local health units and urged to continue actively all proper procedures to the end that local public health service shall become adequate throughout the nation.

DEVELOP SCHEME FOR INTERSTATE CONTROL OF RABIES

Interstate action to check the spread of rabies was initiated by the States of New York, New Jersey, and Pennsylvania in December, 1948, at a conference of officials of the three states, held in New York City. The conference was sponsored by New York's Joint Legislative Committee on Interstate Cooperation, headed by Assemblyman Harold C. Ostertag, and by the Council of State Governments.

Pursuant to a conference recommendation, the three states will coördinate interdepartmental efforts to control rabies, and within the states set up a tri-state continuing committee which will synchronize the rabies control work in the region. New York State has already coördinated its own rabies control program through an Interdepartmental Committee on which representatives of the Departments of Health, Conservation, and Agriculture and Markets serve.

The tri-state action was taken as the result of an epidemic of rabies in central New York State which has continued since 1944, and which affects a number of counties bordering on New Jersey and Pennsylvania.

Noticed first among dogs, the disease is now virtually under control in this species in New York as the result of mass dog vaccination programs. The fox has now replaced the dog as the chief vector. Up to mid-December of 1948, only 23 rabid dogs were reported for upper New York State for the year, but 244 rabid foxes had been recorded. Last year 52 rabid dogs were reported in Upstate New York and 275 rabid foxes.

Cattle are the chief targets of New York's "crazy foxes," the conference was told. Farmers lost 440 cows in 1946 from rabies, 329 in 1947, and 210 in 1948. While these losses appear to be declining, both health and agricultural authorities believe it is due to the fact that the disease is now spreading in areas where dairy herds are more scattered, rather than to subsidence of the disease itself.

Pennsylvania authorities participating in the conference at which the inter-state control program was inaugurated, said that 22 rabid foxes were reported in 1946 in Pennsylvania counties bordering New York's infected areas, but the incidence of the disease has apparently declined since then.

Dr. C. P. Bishop, Director of Pennsylvania's Bureau of Animal Industry, cited the bounty system employed by that state as a possible factor in checking the disease among foxes. He

pointed out that Pennsylvania paid out $158,697 in bounties on predators during the fiscal year ending May 31, 1948, and that the chief predators taken, numbering some 33,000, were foxes.

New Jersey authorities reported no incidence of fox rabies, as yet, but were alerted to the possibility of its appearance when New York authorities pointed out that many cases have been reported in Sullivan County, New York, on the New Jersey border. Dog rabies continues to be the prevalent problem in New Jersey, Dr. J. S. McDaniel of the New Jersey Health Department said, particularly in Mercer, Somerset, Union and Middlesex Counties.

New York State's efforts to check the disease in foxes have taken the form of an intensive trapping program carried on through the State Conservation Department by 27 professional trappers. Trapping has been done in 50 mile square control areas, where the disease has been most prevalent, and some 4,000 foxes have been taken in these areas. A check is now under way to determine whether this method is effectively halting the spread of the disease.

John Wilson, coördinator of the rabies program for the New York State Conservation Department, expressed the belief at the conference that the professional trapping method would prove more effective than the bounty system advocated by many sportsmen, inasmuch as the bounty hunters would not necessarily take foxes from the infected areas and would not trap down to the residual breeding stock as the professional trappers do.

Dr. Alexander Zeissig, veterinary consultant of the New York State Health Department, who has directed the dog vaccination program for that state emphasized the importance of public education and voluntary coöperation in the mass vaccination programs as the most effective methods yet devised for combating rabies. He pointed out that compulsory vaccination programs, where instituted in other states, have not been successful, whereas, under the voluntary methods, correlated with a program of public education, from 70 to 90 per cent of the dogs have been vaccinated in infected areas in New York with a corresponding reduction of canine rabies.

NEW YORK STATE PLANS LARGE MEDICAL AND PUBLIC HEALTH CENTERS

In a recent Report of the Temporary Commission on the Need for a State University, submitted to the Governor and the Legislature of the State of New York by a Committee under the Chairmanship of Owen D. Young, it is stated that the conditions of the times require a broadening of the public provisions for higher education on all fronts. The times also require more effective assurance of equality and of educational opportunities for all qualified youth. In the opinion of the Commission these ends can best be served by a long-range program that would include the establishment of a state university and the establishment of two medical centers by the state, including schools of medicine, dentistry, nursing, and public health, one in up-state New York, and one in the New York City metropolitan area. According to the report, this program may be achieved either by taking over and expanding existing private institutions or by building new ones, or by state aid. In addition, it is proposed that there should be established another state-supported school of veterinary medicine at one of the medical centers, and consideration should be given of financial assistance to private medical schools where a special need exists.

The Commission concludes that New York State uses about one-third more doctors than it educates and that expansion is necessary if New York State contributes its share of the supply of doctors required by the expanding

health needs of the state and the nation. A serious shortage of dentists exists. More than half of the New York students of dentistry attend other state schools, reaching a total of more than 800 dental students per year going out of the state beyond those who come in from other states. It is suggested that provisions be made to supply dental hygienists, dental technicians, and dental assistants.

Facilities for the training of nursing students, of practical nurses, and of veterinarians should be expanded.

"The state has special need for more psychiatrists and public health doctors which can be met by medical centers in which appropriate emphasis is given to each of the health service needs." "Practitioners in the health professions need inservice training in new methods of treatment, as well as consulting service, which can best be provided by medical centers."

Many rural areas, in the opinion of the Commission, are suffering from a shortage of dentists. The entire plan should have as a major objective the preparation of physicians and dentists for the rural areas where the need is most acute.

NEW CANCER FILM AVAILABLE

A new film titled "Cancer: The Problem of Early Diagnosis," which is the first in a series of motion picture films on cancer, will be available for loan or purchase after February 1, according to an announcement made jointly by the co-sponsoring agencies—the American Cancer Society, Inc., New York City, and the National Cancer Institute, U. S. Public Health Service, Bethesda, Md.

This is a 16 millimeter color film with sound, said to have a running time of 30 minutes. It was produced under the direction of Charles S. Cameron, M.D., Medical and Scientific Director of the A.C.S. and Austin V. Diebert, M.D., Chief of the Cancer Control Branch of the National Cancer Institute. A 16 page pamphlet describing the film and suggesting ways to use it has been prepared for program chairmen.

According to the co-sponsors, prints for single showings may be had from state cancer society offices, state health departments, or from Association Film's regional offices located in New York, Dallas, Chicago, and San Francisco. Information about this film and five succeeding films in the proposed series may be obtained from the American Cancer Society, 47 Beaver Street, New York 4, or the National Cancer Institute, Bethesda 14, Md.

PERSONALS

CALLIS H. ATKINS,† Sanitary Engineer, heads the newly created Division of Sanitation of the U. S. Public Health Service. This Division has the responsibilities of the former Sanitary Engineering Division except water pollution control and research in environmental sanitation.

WILL H. AUFRANC, M.D.,* of the staff of the U. S. Public Health Service, who served as Venereal Disease Consultant in the District Office in San Francisco, Calif., became Assistant Chief of the Division of Venereal Diseases, U. S. Public Health Service, Washington, effective December 1, 1948.

ANDRE BAUDE, M.D., who has been on the staff of the State Tuberculosis Sanatorium at Norton, Kans., since 1942, is Acting Director of the Division of Tuberculosis Control, Kansas State Health Department.

AMBROSE P. BELL,† former public health engineer for the Washington, D.C., Health Department, was appointed in November, 1948, to the new executive post of Sanitary Engineer, Louisville-Jefferson County, Kentucky, Board of Health.

CHARLES H. BLANDFORD, M.D.,† formerly Director of the Hardin County Kentucky Health Department, has been appointed Director of the Marion County Health Department, with headquarters at Ocala, Fla.

COL. HERBERT M. BOSCH,* Chief of the section on Environmental Sanitation, Minnesota Department of Health, was decorated by the Netherlands Government as a Commander with Swords in the Order of Orange-Nassau in a ceremony held on December 16, 1948, at the University of Minnesota. The decoration was presented on behalf of his government by the HON. L. C. WILTEN, Minneapolis Consul for the Netherlands.

SARAH H. BOWDITCH, M.D.,† has been named Assistant Director of the Division of Venereal Diseases in the Massachusetts State Department of Health. A graduate of the Harvard School of Public Health, she served during World War II as a lieutenant-colonel in the army medical corps.

LYNN BYRNE is the new business manager for the Divide-McKenzie-Williams Counties Health Department with headquarters in Williston, N. D.

MARY T. COLLINS,† on September 1, 1948, became Secretary of the A.N.A. and N.O.P.H.N. Joint Committee on Nursing in Prepayment Health Plans.

LOUISE G. CAMPBELL,† Special Field Consultant, New York State Committee on Tuberculosis and Public Health, on February 1, became Associate in Health Education of the National Tuberculosis Association, New York City.

DOMENIC CAPONE, S.A. Engr. (R),† is Area Supervisor of A Fly Control Project, U. S. Public Health Service, at the Communicable Disease Center, Phoenix, Ariz., where he will be working in conjunction with the Phoenix City Health Department for the next 5 years.

MADGE L. CROUCH for the past year on the teaching staff of the Methodist Hospital in Brooklyn, N. Y., has become Assistant Director of the Red Cross National Blood Program Nursing Division.

GEORGE A. DAME, M.D.,* Director of the Bureau of Local Health Service, Florida State Board of Health, was elected Chairman of the Section on Public Health, Southern Medical Association, at the meeting held in Miami, Fla., October 25–28.

LT. COL. EDWARD J. DEHNE, M.C.,† recently received a decoration and diploma nominating him an officer in the Order of Leopold II by the Belgian Government, in recognition of his wartime services in the European Theatre as a Public Health Specialist.

MARGARET DILL,† who has been on leave of absence to serve as Acting Director of Public Health Nursing Education for the Louisville-Jefferson County, Kentucky Board of Health for the past 6 months because of the illness of the Director, ELIZABETH GOFORTH, has rejoined the staff of the American National Red Cross, and Miss Goforth has returned to duty.

JAMES A. DOULL,* formerly Chief of the Office of International Health Relations, U. S. Public Health Service, Washington, D. C., became Director of Research at the American Leprosy Foundation (Leonard Wood Memorial) November 1, with headquarters in Washington, D. C. As Director, Dr. Doull will conduct studies on the epidemiology of leprosy.

MAJOR FRED H. DOWNS, JR., MSC,* resigned as Director of the Division of Milk and Dairy Products, Louisiana State Health Department on November 18, to return to extended

* Fellow A.P.H.A.
† Member A.P.H.A.

active duty with the United States Army, assigned as Sanitary Engineer, Office of Surgeon, Headquarters Fourth Army, Fort Sam Houston, Texas.

J. M. GORDON, M.D.,† Director of the Carter County Health Department, Ardmore, Okla., resigned in October to accept a position with the veterans' hospital at Legion, Tex.

JOHN F. HACKLER, M.D.,* former Professor of Preventive Medicine and Public Health at the University of Oklahoma School of Medicine, Norman, was recently named Director of the Muskogee County Health Department, Oklahoma.

WINIFRED HELEN HILLARD, R.N.,† formerly Assistant in School Health Education for the District of Columbia Tuberculosis Association, has joined the New York Tuberculosis and Health Association as Health Education Assistant in the Health Education Division.

BENJAMIN G. HORNING, M.D., M.P.H.,* Director of the Division of Medicine, W. K. Kellogg Foundation, Battle Creek, Mich., left on November 30 for Mexico, Central and South America on a 6 month official trip.

MARGARET D. HOWELL, D.M.D., was appointed Children's Dentist in the Division of Dental Hygiene, Connecticut State Department of Health, effective October 1. She will be concerned primarily with the continued provision of dental care to children in rural areas where there is a current shortage of resident dentists.

PAT KELLEY, former Executive Secretary of the San Francisco Tuberculosis and Health Association, is now Director of the American Social Hygiene Association's Western Regional Office with headquarters at 995 Market Street, San Francisco, and a territory including Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, and Washington.

GLADYS KEYES, who joined the staff of the Contra Costa County Health Department, Calif., in November, 1946, has been appointed as the Director of Public Health Nursing, succeeding EDNA ROBINSON, resigned.

CAROLYN KINGDON,† on November 1, became the first Executive Secretary of the National Foundation for Infantile Paralysis, Honolulu Chapter.

AUBREY MALLACH† of the Health Council of Greater New York, who has been its Associate Director since June, 1947, was recently appointed Executive Director.

CLAYTON B. MATHER, M.D.,† formerly Director of the Monroe County, Michigan, Health Department, was appointed Health Officer of Greenwich, Conn., effective October, 1948.

ALBERT MILZER, PH.D.,† Director of the Department of Bacteriology and Virology of Michael Reese Hospital, Chicago, has recently been awarded a grant of $1,000 by the Committee on Scientific Research of the American Medical Association to conduct a survey of virus and rickettsial diseases in the Chicago area.

HAROLD G. NELSON, M.D., has succeeded C. H. KINNAMAN, M.D., as Director of the Division of Epidemiology, Kansas State Health Department. Dr. Kinnaman will continue in a consultant capacity, and will be directly in charge of special programs.

ARTHUR W. NEWITT, M.D.,* Senior Surgeon of the U. S. Public Health Service, on November 1 became tuberculosis control officer for the State of Michigan having resigned a similar position in Chicago.

JACK O'BRIEN has been appointed Public Health Assistant with the Division of Public Health Laboratories, North Dakota State Health Department, Bismarck.

GEORGE W. PAETH, M.D., has been ap-

pointed as Deputy District Health Officer of the Washington-Yamhill District Health Department in Oregon.

ELNA I. PERKINS* has resigned as health education worker with the New York State Food Commission to accept a teaching post in health education at Springfield (Mass.), College.

KURT POHLEN, PH.D.,* has been appointed Assistant Professor in the Department of Hospital Administration of St. Louis University Graduate School, Mo., where he will teach public health and hospital statistics. He continues also as Director of Research and Statistics of the Catholic Hospital Association of the United States and Canada.

M. ALLEN POND* has been appointed Assistant Chief of Engineering Activities of the U. S. Public Health Service to assist MARK D. HOLLIS,† the Chief Sanitary Engineering Officer, in the administration of programs of the Divisions of Sanitation and Water Pollution Control and the Environmental Health Center at Cincinnati, Ohio.

MILA E. RINDGE, M.D.,† who completed her graduate work in Public Health at Columbia University, New York City, last June, has been appointed epidemiologist in the Bureau of Preventable Diseases of the Massachusetts State Department of Health.

MAURICE A. ROE, M.D.,† has been appointed as Regional Medical Director for Region 8 of the U. S. Public Health Service with headquarters in Dallas, Tex. Dr. Roe succeeds KNOX E. MILLER, M.D., who has been assigned to the Milwaukee City Health Department.

MEFFORD R. RUNYON has been elected Executive Vice-President of the American Cancer Society, New York, N. Y., effective February 1, succeeding DOUGLASS POTEAT, who resigned to return to the legal field. Mr. Runyon was formerly Executive Vice-President and Director of Columbia Records, Inc., and last spring directed the Society's field organizations.

MATHILDA SCHEUER, R.N.,* was recently chosen President of the Pennsylvania State Nurses Association at the annual convention in Pittsburgh.

CARL E. SCHWOB,* Sanitary Engineer of the U. S. Public Health Service, has been made head of the newly-created Division of Water Pollution Control of the Service. The new division is charged with carrying out the Public Health Service water pollution control responsibilities as stated in Public Law 845, enacted by the 80th Congress.

BRIGADIER GENERAL JAMES STEVENS SIMMONS, U.S.A.,* Rtd., Dean of the Harvard School of Public Health, received a "Citation of Merit" on November 6, 1948, from Davidson College, Davidson, N. C., for outstanding contributions in the fields of Preventive Medicine and Public Health. General Simmons received his B.S. degree from Davidson College and the honorary degree D.Sc.

LEONID S. SNEGIREFF, M.D.,† recently Medical Director of the New Jersey Division of the American Cancer Society, now heads the research and teaching project in cancer control at the Harvard School of Public Health in Boston.

MELVILLE A. TAFF, JR.,† has joined the Hawaii Department of Health as Chief of the Bureau of Health Statistics. He has held a similar position with the Louisiana State Health Department for the past 5 years.

RAY E. TRUSELL, M.D.,† formerly New York State Health Department epidemiologist has been appointed full-time Professor of Preventive Medicine

* Fellow A.P.H.A.
† Member A.P.H.A.

and Public Health in the Albany (New York), Medical College.

JOYCE MOORE TURNER, formerly nutritionist with the Queens, New York, Chapter of the American Red Cross, has been appointed Nutrition Consultant of the Harlem Committee, New York Tuberculosis and Health Association.

ANTOINE B. VALOIS, M.D.,† Superintendent of the Division of Vital Statistics of the Montreal Department of Health, was elected Chairman of the Section on Vital Statistics of the Canadian Public Health Association at the annual meeting held in Ottawa, on October 18.

LEROY W. VAN KLEECK, Principal Sanitary Engineer in charge of field supervision of sewage treatment plants for the Connecticut State Department of Health, received the George Bradley Gascoigne plaque and the Charles Alvin Emerson award for meritorious and outstanding service to the Federation, at the 1948 annual convention of the Federation of Sewage Works Associations recently held in Detroit.

HELEN M. VAN METER retired from the Bureau of Maternal and Child Hygiene, Connecticut State Health Department, on November 1, after 25 years as Regional Public Health Nurse.

CARL E. WEIGELE, M.D.,† who has been associated with the New Jersey State Department of Health since 1940, has been made Director of the Bureau of Preventable Diseases. He will also serve as Deputy Director of the Department during the Commissioner's absences.

J. M. WISAN, D.D.S., M.P.H.,* in October, 1948, became Director of the Joseph Samuels Dental Clinic for Children of the Rhode Island Hospital. Most recently Director, Division of Dental Health Education of the American Dental Association, he was formerly Chief of the Division of Dental Health, New Jersey Department of Health. He is co-editor of the Association's Dentistry in Public Health, now in press.

LULU K. WOLF, R.N.,† formerly Professor of Nursing at Vanderbilt University, has joined the faculty of the University of California at Los Angeles as Chairman of the Department of Nursing.

WILMA YORK is now a Local Field Supervisor in the Pacific Coast Office of the Metropolitan Life Insurance Company. Miss York has been with Metropolitan since 1939.

Deaths

CHARLES A. BAILEY, M.D., M.P.H.,† Hospital Consultant, Mississippi Commission on Hospital Care, Jackson, Miss., (Unaffiliated Section).

RICHARD C. BECKETT,† Sanitary Engineer for the Delaware State Board of Health for 25 years, died December 16 (Engineering Section).

GEORGE H. COOMBS, M.D., State Health Director of Maine from 1932 until 1937, died November 20 at the age of 85.

HUGH S. CUMMING, M.D.,* retired Surgeon General of the U. S. Public Health Service, and President of the American Public Health Association for the year 1931, died December 20 (Health Officers Section).

NETTIE DORRIS, M.D.,† of the Illinois State Department of Health, died October 10. She had been a member of the medical staff of the department for 15 years (Health Officers Section).

COLONEL ROBERT D. HARDEN, M.C.,† of Halls Camp, Marathon, Fla., (Health Officers Section).

ARTHUR M. JOHNSON, M.D.,* Up-State Director, State Study of Child Health Services, Rochester, N. Y. (Health Officers Section).

HARVEY P. JONES,† Jones & Henry Con-

sulting Engineers, Toledo, Ohio (Engineering Section).

EUGENE E. LAMOUREUX, M.D.,† Director of the Bureau of Preventable Diseases of the Connecticut State Department of Health, died November 22, at the age of 41 (Epidemology Section).

GERALD MORGAN,† Consultant on Disability, Social Security Board, Washington, D. C., (Unaffiliated Section).

WALTER B. MOUNT, M.D.,† Emeritus Obstetrician, Mountainside Hospital, Montclair, N. J. (Maternal and Child Health Section).

GEORGE H. RAMSEY, M.D., DR.P.H.,* Resident Lecturer in Epidemiology (on leave) Department of Epidemiology, School of Public Health, University of Michigan, Ann Arbor, (Epidemiology Section).

MICHAEL D. RIORDAN, M.D.,† Health Officer of the towns of Chaplin and Windham, Conn., for 13 years, died October 28 (Health Officers Section).

JOSEPH L. SCHWARTZ, M.D.,† President, TruTest Laboratories, Philadelphia, Pa., (Laboratory Section).

EDGAR E. SHIFFERSTINE, M.D., Chief of Rheumatic Heart Clinics, Pennsylvania Department of Health, died August 22.

BENJAMIN J. SLATER, M.D.,† Associated Medical Director of the Eastman Kodak Company, and former President, New York State Society of Industrial Medicine, died on December 6 (Industrial Hygiene Section).

ALBERT E. SMALL, M.D., M.P.H.,† Chairman, Board of Health, City of Melrose, Mass., (Health Officers Section).

HAROLD A. THOMPSON, M.D.,† City and County Bacteriologist, San Diego, Calif., (Laboratory Section).

WILLIAM C. TREDER, M.D.,† Commissioner of Health, Schenectady, N. Y., (Health Officers Section).

ORPHA L. WHITE,† Executive Secretary of the Lake County (Illinois) Tuberculosis Association since 1937, died November 14 (Public Health Education Section).

BYRON W. WOOD, M.D.,† Director, City Health Unit, Port Arthur, Tex., (Health Officers Section).

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American College of Physicians. New York, N. Y. March 28–April 1.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association. New Jersey Section Luncheon Meeting. Essex House, Newark, N. J. February 17.

Association for Physical and Mental Rehabilitation. Third Annual Convention. Hotel New Yorker, New York, N. Y. May 18–21.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Health Officers and Public Health Nurses of New York State. 45th Annual Conference. Lake Placid, New York. June 20–23.

Illinois Public Health Association. Edgewater Beach Hotel. Chicago, Ill. April 7–8.

Iowa Public Health Association. Des Moines, Iowa. June 2–3.

Kansas Public Health Association. Hotel Besse, Pittsburg, Kan. April 25–27.

Massachusetts Public Health Association. Amherst, Mass. June 15–17.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Missouri Public Health Association. Jefferson City, Mo. May 4–6.

National Cancer Conference. Memphis, Tenn. February 25–27.

National Society for the Prevention of Blindness. New York, N. Y. March 16–18.

National Tuberculosis Association. Detroit, Mich. Week of May 2.

New Mexico Public Health Association. Nixon Hotel, Roswell, N. M. March 23–26.

Pest Control Operators Conferences:
Canadian. University of Montreal, P.Q., Canada. February 14–16.
Purdue. Purdue University, Lafayette, Ind. February 7–11.

Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14–16.

Western Branch American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.

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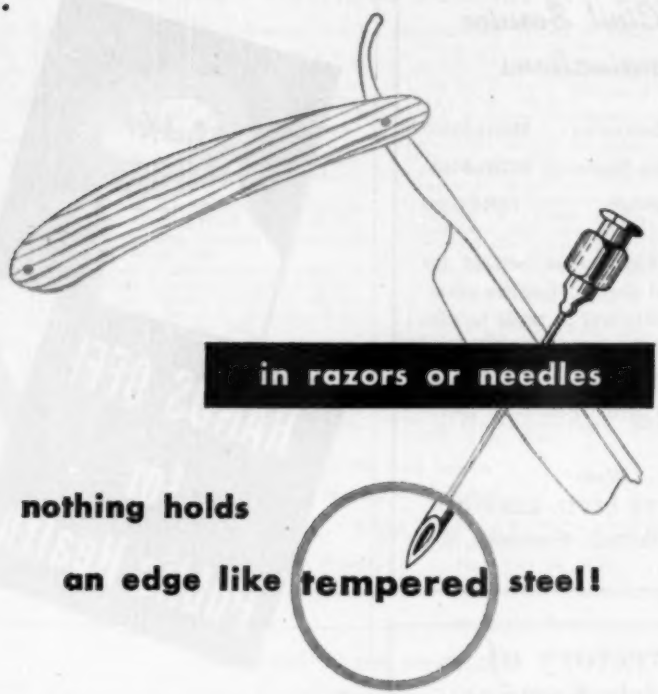

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KIND OF MEAT	COMPLETE PROTEIN	B VITAMINS			IRON
		THIAMINE (B$_1$)	RIBOFLAVIN (B$_2$)	NIACIN	
PORK	EXCELLENT	EXCELLENT	FAIR	EXCELLENT	EXCELLENT
BEEF	EXCELLENT	FAIR	EXCELLENT	EXCELLENT	EXCELLENT
LAMB	EXCELLENT	FAIR	GOOD	EXCELLENT	EXCELLENT
VEAL	EXCELLENT	GOOD	GOOD	EXCELLENT	EXCELLENT
VARIETY MEATS (LIVER, HEART, KIDNEY)	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT
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